PHILOSOPHICAL TRANSACTIONS.

I. *Researches on Solar Physics. Heliographical Positions and Areas of Sun-spots observed with the Kew Photoheliograph during the years* 1862 *and* 1863. *By* WARREN DE LA RUE, *Esq., Ph.D., F.R.S., F.R.A.S., Pres. C.S.*, BALFOUR STEWART, *Esq., LL.D., F.R.S., F.R.A.S., Superintendent of the Kew Observatory, and* BENJAMIN LOEWY, *Esq., F.R.A.S.*

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1. WE have been hitherto engaged in preliminary researches devoted chiefly to the physical nature of the sun, but we now propose to give a first instalment of the measurements made with a view of making the solar photographs taken at Kew the basis of a new determination of the sun's astronomical elements. Accordingly the present paper contains the results of measurements of the Kew sun-pictures for 1862 and 1863, *i. e.* the heliographical longitudes and latitudes of all spots observed in these two years, together with a full description of the methods pursued in the reductions. The results of the succeeding years, and their final discussion with reference to the sun's elements, will be published hereafter.

In addition to those measurements which have reference to the heliographical position of each spot, we have also measured the area of each group on each occasion when it was observed; and we conceive that in thus giving the position and area of each group we give all the information regarding sun-spots that is capable of accurate numerical expression, at least in the present stage of our knowledge.

Measurements made with the view of determining the Heliographical Latitude and Longitude of Spots.

2. We need not again describe the measuring-apparatus and its various adjustments; for these have been already described by Mr. DE LA RUE in the Bakerian Lecture for 1862.

Suffice it to say that, in the photoheliograph by which the sun-pictures are taken, there is at the joint focus of the object-glass and eye-glass a system of two fixed wires,

one of which is perpendicular to the other; and consequently an impression of these wires is produced in every sun-picture which is obtained.

The nature of the measurements made will be better understood by supposing for the moment that this system of wires is in exact adjustment, and that their centre is also the centre of the sun-picture. Then by means of the measuring-instrument the following elements are measured:—

(1) The diameter of the sun in the picture taken (in inches).

(2) The distance of a spot from the sun's centre (in inches).

(3) The angle which the line joining the spot and the sun's centre makes with one of the wires.

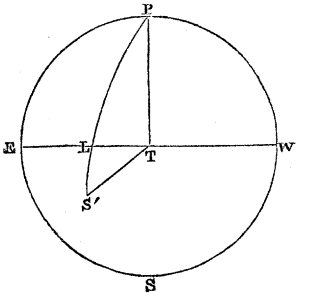
Sufficiency of Observational Data afforded by means of Measurements.

3. It will now be necessary to show that these observational data are sufficient for the determination of the heliographical position of the sun-spots. As will be seen from the following general considerations, two elements are required for this purpose, viz. the angular distance of a spot from the centre of the sun, and its angle of position with reference to a fixed line, at the time of the observation.

It is perhaps almost superfluous to remark that our object is to ascertain the heliographical latitude and longitude of spots—that is to say, the angular distance of a spot from the solar equator, and also from a certain meridian of solar longitude, the meridian chosen being that which passes through the vernal equinox, and the degrees being reckoned from west to east.

Let P E S W (fig. 1) represent the visible disk of the sun, of which circle T, the earth, is the pole, and let S′ be the place of a spot; also let W E denote the plane of the ecliptic, and let P and S be its poles.

Fig. 1.



In the spherical triangle P T S′ the angle T P S′ is obviously the difference of longitude of the spot S′ and the earth, while the arc P L S′ represents the north polar distance of the spot, and gives consequently the latitude. But in this triangle we have the necessary parts given for finding P S′ and T P S′;

for the side P T $=90°$,

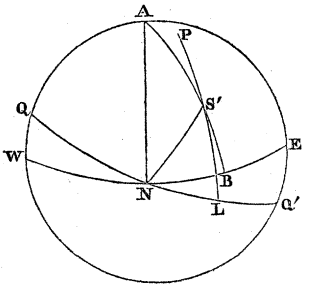
the angle P T S′$=90°+$E T S′ is the angle of position of the spot S′,

the side T S′ $=$the angular distance of the spot from the centre, which is given by the consideration, that

$$\text{the sine of the angular distance} = \frac{\text{measured distance T S}'}{\text{sun's semidiameter}}.$$

Hence we see that the observational data required for our purpose are, as far as the ecliptic is concerned, the measured length of the distance of a spot from the centre, and its angle of position, both of which data are given with the greatest precision by our measuring-instrument applied to the solar photographs.

Fig. 2.



To transform the ecliptical coordinates thus found into the heliographical, let P (fig. 2) be the true pole of the sun, A that of the ecliptic, which is represented by W E, while Q Q′ is the sun's equator, and N the node. Then, if S′ be a spot, the preceding considerations make known to us the sides S′ B and B N in the triangle S′ N B, while we really require S′ L and N L, which are the true heliographical coordinates. These, however, are easily deduced when we consider that in the triangle S′ N B

$$\cos \mathrm{N\,S'} = \cos \mathrm{S'\,B} \cos \mathrm{B\,N},$$
$$\cos \mathrm{S'\,N\,B} = \cot \mathrm{N\,S'} \tan \mathrm{B\,N},$$

and that in the triangle S′ N L the angle S′ N L=S′ N B+I, I being the inclination of the sun's equator and the plane of the ecliptic; therefore

$$\sin \mathrm{S'\,L} = \sin \mathrm{N\,S'} \sin \mathrm{S'\,N\,L},$$
$$\sin \mathrm{N\,L} = \tan \mathrm{S'\,L} \cot \mathrm{S'\,N\,L},$$

which gives the required coordinates.

4. The principles of reduction here explained, however, have been considerably modified, and we have throughout followed the elegant and convenient method given by Mr. CARRINGTON in his volume of Sun-Observations. The method being now adapted to sun-observations by means of photography, we have thought it necessary to give in the following pages a detailed account of it, and here take the opportunity to express our gratitude to Mr. CARRINGTON for the advice and instruction which he has kindly given to M. VON BOSE, to whom the first part of the reductions, extending over the year 1862, was entrusted.

We have also adopted for our calculations the values proposed by Mr. CARRINGTON for the longitude of the sun's ascending node, and for the angle of inclination of the plane of the solar equator and that of the ecliptic (vide Mr. CARRINGTON'S Observations, page 244), viz.

$$\mathrm{I}=7^\circ\ 15',\ \mathrm{N}=73^\circ\ 40' \text{ for } 1850{\cdot}0.$$

The auxiliary Tables necessary for the reductions, which are given in Mr. CARRINGTON'S volume, pages 20 to 26, were consequently recalculated; but as they can easily be deduced from those published by Mr. CARRINGTON, by those who choose to adopt his elements for the calculation of the position of sun-spots, they are not given here.

Various Steps of the Process of Reduction.

5. We thus see that the measurements made are sufficient to determine, in the first place, the ecliptical latitude and longitude of a spot, and, in the second place, by knowing the longitude of the ascending node of the solar equator as well as the inclination of this to the plane of the ecliptic, to transform these ecliptical elements into others having reference to the solar equator instead of the ecliptic.

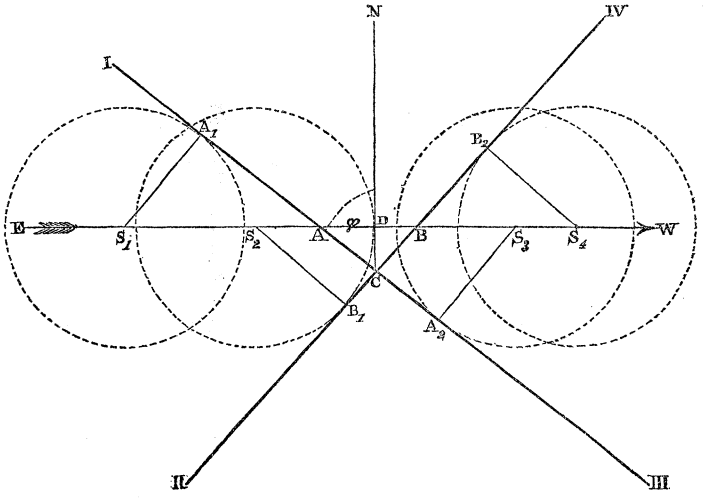
The first step in all this is to be able to trace on each solar photogram a line which

represents the projection of the plane of the ecliptic—or, what is equivalent to this, to ascertain the position-angle with reference to the ecliptic of the wires depicted on the sun-pictures, and which appear as bright lines untouched by the chemical action of the sun's rays.

If the wires in the photoheliograph could be so placed as to be always inclined at an angle of 45° exactly to a parallel of declination, if the declination of the sun could remain constant—further, if the wires could be made truly vertical to each other, and the picture be taken precisely in the centre of the photoheliograph, then obviously the wire I. (fig. 3) would make an angle of 45° with the true north point of the sun's disk, wire II. of 135°, and so on—the readings on the circle giving at once the precise angles of position of the wires and of any other line drawn to the centre, reckoning from north through east. These conditions, however, cannot be fulfilled; and the following steps are necessary for obtaining the corrections to be applied to the observed readings, in order to deduce the true position-angles.

6. To find the true inclination (φ) of the wire I. (fig. 3) to the line N D C (which is supposed to be drawn perpendicularly through the sun's path, and joining its centre and true north point), the following method, due to Mr. CARRINGTON, has been adopted.

Fig. 3.



A plate of ground glass is inserted in the chamber provided in the heliograph for the reception of the prepared plates for the sun-pictures; and a bright image of the sun, and also of the black shadow which the wires throw upon it, in the form of well-defined lines, is seen on the plate. The sun is, of course, observed running along it from left to right, the true north limb being the upper one. In the figure the sun's centre is supposed to run along the line EW, passing north of the intersection-point of the wires, C. When the centre has arrived at a point S_1, such that the length of the perpendicular S_1A_1 is equal to the radius of the disk, a contact of the disk with the wire will take place, the instant of which is observed by a chronometer. There will be four such contacts, the times of which may be denoted by the letters A_1, B_1, A_2, B_2.

Neglecting the effects of hourly motion and of error of perpendicularity to each other of the wires, we have from the geometry of the figure, if we call R and δ respectively the sun's radius and north polar distance,

$$\frac{BC}{2AB}=\frac{S_1A_1}{S_1S_3}=\frac{R}{15\,.\,\sin\delta\,.\,(A_2-A_1)},$$

$$\frac{AC}{2\,.\,AB}=\frac{S_2B_1}{S_2S_4}=\frac{R}{15\,.\,\sin\delta\,.\,(B_2-B_1)},$$

whence

$$\frac{BC}{AC},\ \text{or}\ \tan BAC=\cot\varphi=\frac{B_2-B_1}{A_2-A_1},\ \text{or}\ \tan\varphi=\frac{A_2-A_1}{B_2-B_1}.$$

The observations for the determination of φ are repeated at intervals of a few weeks; and generally two sets of observations are taken, one on each side of the meridian. From the results and by interpolation the magnitude of φ is deduced for each sun-picture taken.

The following is an example of the observations:—

August 25th, 1864. Sun East of Meridian. Kew Mean Time.

	First Observation.			Second Observation.			Third Observation.		
	h	m	s	h	m	s	h	m	s
A_1	10	12	12·0	10	16	23·0	10	21	31·5
B_1		12	31·5		16	43·0		21	55·5
A_2		15	14·5		19	25·5		24	35·0
B_2		15	34·0		19	45·5		24	58·5
A_2-A_1			182·5			182·5			183·5
B_2-B_1			182·5			182·5			183·0

Mean $A_2-A_1=182{\cdot}83$ log $=2{\cdot}2620475$

$B_2-B_1=182{\cdot}67$ log $=2{\cdot}2616672$

$\varphi=45°\ 1'{\cdot}5$ log tan $=0{\cdot}0003803$

Sun West of Meridian.

	First Observation.			Second Observation.			Third Observation.			Fourth Observation.		
	h	m	s	h	m	s	h	m	s	h	m	s
A_1	2	58	19·0	3	2	17·5	3	6	16·5	3	10	22·0
B_1		58	31·5		2	34·0		6	32·5		10	36·5
A_2	3	1	20·5		5	19·0		9	19·0		13	24·5
B_2		1	32·5		5	35·0		9	34·0		13	38·0
A_2-A_1			181·5			181·5			182·5			182·5
B_2-B_1			181·0			181·0			181·5			181·5

Mean $A_2-A_1=182{\cdot}00$ log $=2{\cdot}2600714$

$B_2-B_1=181{\cdot}25$ log $=2{\cdot}2582780$

$\varphi=45°\ 7'{\cdot}1$ log tan $=0{\cdot}0017934$

7. It has been assumed in the preceding deduction that the line N D C, joining the sun's centre and north point, is perpendicular to the sun's path. This, however, is impossible on account of the change in the sun's declination. It is clear that such a line, drawn through the centre and perpendicular to the sun's path, will incline towards the west when the sun's north polar distance is increasing, and towards the east when it is decreasing. This deviation must therefore be applied as a correction.

If d be the sun's hourly increment of declination as given in the Nautical Almanack in seconds of arc, this correction will be (vide Mr. CARRINGTON'S Observations, page 11)

$$\iota = \frac{d}{15 \cdot \sin \delta \times 60 \times 60 \times \sin 1''}$$

with its proper sign.

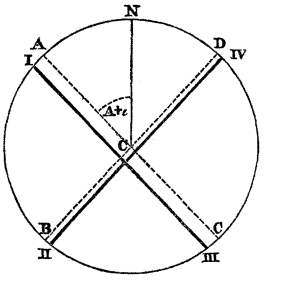
The following Table gives this correction in minutes, calculated for every fifth day of the year. The angle designated $A + \iota$ in our calculations represents the angle $\varphi \pm \iota$.

Day.	ι.	Day.	ι.	Day.	ι.	Day.	ι.
	′		′		′		′
January 1.	+0·90	April 6.	+3·60	July 10.	−1·30	October 13.	−3·60
6.	+1·25	11.	+3·50	15.	−1·60	18.	−3·50
11.	+1·60	16.	+3·40	20.	−1·90	23.	−3·40
16.	+1·95	21.	+3·30	25.	−2·20	28.	−3·30
21.	+2·30	26.	+3·15	30.	−2·50	Nov. 2.	−3·10
26.	+2·55	May 1.	+3·00	August 4.	−2·70	7.	−2·90
31.	+2·80	6.	+2·80	9.	−2·90	12.	−2·70
February 5.	+3·05	11.	+2·60	14.	−3·05	17.	−2·50
10.	+3·30	16.	+2·35	19.	−3·20	22.	−2·20
15.	+3·40	21.	+2·10	24.	−3·35	27.	−1·90
20.	+3·50	26.	−1·80	29.	−3·50	Dec. 2.	−1·50
25.	+3·60	31.	+1·50	Sept. 3.	−3·55	7.	−1·10
March 2.	+3·70	June 5.	+1·15	8.	−3·60	12.	−0·70
7.	+3·75	10.	+0·80	13.	−3·65	17.	−0·30
12.	+3·80	15.	+0·45	18.	−3·70	22.	+0·10
17.	+3·80	20.	+0·10	23.	−3·70	27.	+0·50
22.	+3·80	25.	−0·25	28.	−3·70	January 1.	+0·90
27.	+3·75	30.	−0·60	October 3.	−3·70		
April 1.	+3·70	July 5.	−0·95	8.	−3·70		

8. The next operation is the rectification of the photograph by means of the wires of the heliograph depicted on it, and the determination of the error of perpendicularity of the wires. For this purpose it is necessary to determine the position-angles of the wires; for it is by means of these that we are enabled to find the angles of position of the lines joining the spots with the centre of the sun. This part of the measurement is very easily accomplished by rotating the larger divided circle of the measuring-instrument on its axis and bringing successively the ends of the wires, commencing with I., under the centre of the microscope, taking care that the image of the wire on the picture is exactly bisected by one of the wires of the microscope, while the other wire of the latter forms a tangent to the periphery of the sun at the middle of the indentation produced by the wire. Thus four readings are obtained for the position of the four wire-ends; and calling these readings in their proper order α, β, γ, δ, it will be easily seen from

fig. 4 that they give us the position-angles and the error of verticality with great precision. For let I., II., III., IV. represent the position of the wire-ends, and A, B, C, D the extremities of two lines, drawn parallel to the wires, but passing through the centre C of the sun-picture. If N represent the true north point of our picture, obviously the angle N C A is the angle $A+\iota$, which has been determined previously. But the position of the point A is given by the quantity

Fig. 4.



$$\frac{\alpha+\gamma}{2}-90^\circ=\alpha'=\text{reading corresponding to A.}$$

Similarly, the position of D by

$$\frac{\beta+\delta}{2}-90^\circ=\beta'=\text{reading corresponding to B;}$$

and obviously

$$\beta'-\alpha'=90^\circ,$$

if the imaginary lines through the centre, or the wires which are parallel to them, are perpendicular to each other. In general we shall find

$$\beta'-\alpha'=90^\circ\pm\theta;$$

and consequently the quantity $\mp\frac{\theta}{2}$ will have to be applied as a correction to $A+\iota$ on account of error of perpendicularity.

Finally, since the true reading of the point A, reckoning from the true north line, ought to be exactly

$$A+\iota\mp\frac{\theta}{2},$$

while it was found to be

$$\frac{\alpha+\gamma}{2}-90^\circ,$$

it is necessary to apply the quantity

$$\left(A+\iota\mp\frac{\theta}{2}\right)-\left(\frac{\alpha+\gamma}{2}-90^\circ\right)$$

with its proper sign, as a correction to every circle-reading, in order to deduce the true angle of position.

The following is an example of this part of the measurement of a picture, the numbers I., II., III., IV. corresponding to the readings α, β, γ, δ:—

May 26th, 1863.

I.	0·089	43°	20′·2	(α)	II. 0·096	134°	45′·3	(β)
III.	0·096	223	20·9	(γ)	IV. 0·091	312	19·6	(δ)
		2)266	41·1			2)447	4·9	
		133	$20·5_5$			223	$32·4_5$	

$$\frac{\alpha+\gamma}{2}-90^\circ = 43^\circ\ 20'{\cdot}5_5 = \alpha'$$

$$\frac{\beta+\delta}{2}-90^\circ = 133\ 32'{\cdot}4_5 = \beta'$$

$$\beta'-\alpha' = 90\ 11'{\cdot}9$$

$$\theta = +\ 11'{\cdot}9$$

$$\frac{\theta}{2} = +\ 5'{\cdot}9$$

$$A+\iota = +45\ 1'{\cdot}8$$

$$-\frac{\theta}{2} = -\ 5'{\cdot}9_5$$

$$-\left(\frac{\alpha+\gamma}{2}-90^\circ\right) = -43\ 20'{\cdot}5_5$$

Correction to readings $= +\ 1\ 35'{\cdot}3$

The readings on the circle for the wires I., II., III., IV. are, as seen in the above example, accompanied by the corresponding scale-readings of the sun's periphery at the wire-ends. They serve in the present instance chiefly as a control of the tangency of the microscope-wire, but will be of special use hereafter in an investigation on the sun's diameter, which we have in view for a future occasion.

9. The necessary corrections to the measurements being thus supplied, each group of spots as it appears on the photograph is then sketched, as represented in the accompanying form, which fills the next two pages, and is an exact representation of that used by us. The first page serves for entering the measurements necessary for determining the centre of the sun-picture, its radius, and the necessary corrections, derived by the preceding methods; while the second page contains the sketches of the groups, indicating by attached letters the different members of each group, the positions of which have been determined, and then gives for each of these members all necessary elements of calculation in five columns, viz. in

Column 1, the distance of a spot from the periphery, in terms of the scale.

Column 2, the distance of a spot from the centre, in terms of the scale (r).

Column 3, the distance of a spot from the centre, expressed as a fraction of the sun's radius $\left(\frac{r}{R}\right)$.

Column 4, the circle-reading corresponding to the position of the spot.

Column 5, the true angle of position, reckoned from north through east (east being left side of sun-picture)=P.

Even the smallest spots have in all cases been measured; and in larger spots, containing several nuclei, the position of each nucleus has been determined. The point chosen for measurement was always the geometrical centre of the figure of the spot or nucleus, as far as careful estimation could ascertain it. Proper care has also been taken to

bring the *centre* of the intersecting wires of the microscope to cover the point to be determined, so as to avoid any error arising from the thickness of the wires.

The following form, which gives the complete measurements and data for calculation of two pictures taken on the same day, hardly requires, after the preceding remarks, any further elucidation.

1862, August 25.

$10^h\ 37^m$

Vernier position 0°	0·093		Vernier position 90°	0·094	
	3·930	D=3·837		3·934	D=3·840
	C=2·012	$R=1·918_5$		C=2·014	R=1·920

C=2·013

R=1·919

I. 0·099	38° 33′·5		II. 0·094	132° 17′·3	
III. 0·094	228 23·7		IV. 0·095	315 1·3	
	266 57·2			447 18·6	
	133 28·6, ∴ 43° 28′·6			223 39·3, ∴ 133° 39′·3	

$\theta=-10'·7$

$A+\iota=+45^\circ\ 35'·5$

$\frac{1}{2}\theta=-\quad 5·3$

$\left(\frac{\alpha+\gamma}{2}-90^\circ\right)$ I. to III. $=-43\ 28·6$

$+\ 2\ 1·6$

$11^h\ 14^m$.

Vernier position 0°	0·095		Vernier position 90°	0·095	
	3·930	D=3·835		3·929	D=3·834
	C=2·013	R=1·917		C=2·012	R=1·917

C=2·012

R=1·917

I. 0·095	41° 51′·2		II. 0·102	132° 47′·2	
III. 0·095	224 53·3		IV. 0·097	314 14·7	
	266 44·5			447 1·9	
	133 22·2, ∴ 43° 22′·2			223 31·0, ∴ 133° 31′·0	

$\theta=-8'·8$

$$A+\iota = +45^\circ\ 35'\cdot3$$
$$\tfrac{1}{2}\theta = -\quad 4'\cdot4$$
$$\left(\frac{\alpha+\gamma}{2}-90^\circ\right)\text{I. to III.} = -43\ 22'\cdot2$$
$$+\ 2\ 8'\cdot7$$

Fig. 5.

$10^h\ 37^m$.

	1.	2.	3.	4.	5.
P.	0·297	1·716	0·894	122° 7'·7	124° 9'·3
Q.	0·320	1·693	0·882	297 21·3	299 22·9
R.	1·764	0·249	0·130	353 54·0	355 55·6
S.	1·080	0·933	0·486	322 14·7	324 16·3
s.	1·129	0·884	0·461	330 37·5	332 39·1

$11^h\ 14^m$.

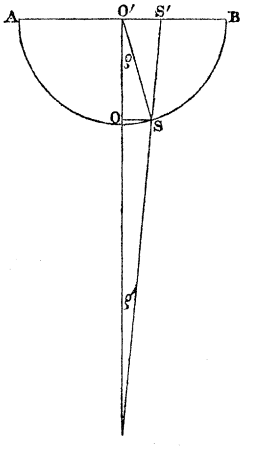
P.	0·308	1·704	0·889	121 56·5	124 5·2
Q.	0·319	1·693	0·883	297 15·3	299 24·0
R.	1·760	0·252	0·131	353 18·3	355 27·0
S.	1·077	0·935	0·488	322 5·8	324 14·5
s.	1·129	0·883	0·461	300 32·3	302 41·0

10. We pass now to the second part of the reduction of the measurements, viz. the calculation of the heliographical positions derived by knowing the observed distance of a spot from the centre of the sun and also its angle of position.

This part of the work may be conveniently divided into the following successive stages. As already mentioned, we have here entirely followed the method of Mr. CARRINGTON, who by introducing tabulated auxiliary values has condensed the two steps necessary for passing from the ecliptical longitude and latitude to the heliographical into one.

First, if r denote the measured distance of a spot from the centre, R the measured radius of the photogram, and (R) the tabular semi-diameter of the sun in minutes of arc; then, in order to express our measured distance in terms of the tabular radius, which required value we may call ϱ', we have the proportion

Fig. 6.



$$r : \varrho' :: R : (R)$$
$$\varrho' = \frac{r}{R}\cdot(R). \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (1)$$

Now it will readily be seen from fig. 6 that O′ S′ is larger than O S, or that the *measured* distance requires a correction to deduce from it the value $\frac{O\,S}{O'\,S}$ for finding the true *angular* distance of a spot from

the centre $=\varrho$. We have from the figure

$$\frac{r}{R}=\frac{O'S'}{O'B}=\frac{O'S'}{O'S}=\sin O'SS'=\sin(\varrho+\varrho'),$$

or

$$\varrho+\varrho'=\sin^{-1}\frac{r}{R};$$

hence

$$\varrho=\sin^{-1}\frac{r}{R}-\varrho'. \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (2)$$

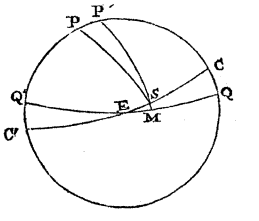
To facilitate the application of this correction the following Table has been calculated, which gives the logarithm of (R) for every tenth day of the year.

Values of log(R).

Jan. 1.	1·212	Mar. 22.	1·206	June 10.	1·198	Aug. 29.	1·201	Nov. 17.	1·210
11.	1·212	Apr. 1.	1·205	20.	1·198	Sept. 8.	1·202	27.	1·211
21.	1·212	11.	1·204	30.	1·198	18.	1·203	Dec. 7.	1·212
31.	1·211	21.	1·203	July 10.	1·198	28.	1·204	17.	1·212
Feb. 10.	1·211	May 1.	1·201	20.	1·198	Oct. 8.	1·206	27.	1·212
20.	1·210	11.	1·200	30.	1·199	18.	1·207		
Mar. 2.	1·209	21.	1·199	Aug. 9.	1·199	28.	1·208		
12.	1·207	31.	1·199	19.	1·200	Nov. 7.	1·209		

11. Next, let C′EC (fig. 7) represent the ecliptic, Q′EQ the celestial equator, and P, P′ the poles of these circles. Then if S is the position of the sun, ES will be its longitude $=\odot$, and the angle $SEM=\varpi$, the inclination of the ecliptic.

Fig. 7.



Now, if the angle $PSP'=G$ represents the inclination of two planes passing through the line joining the centres of the sun and earth, and the poles of the earth and ecliptic respectively, then in the triangle ESM, right-angled at M, we shall have

$$\cos ES=\cot SEM \cot ESM,$$

or

$$\cos\odot=\cot\varpi\tan G,$$

whence

$$\tan G=\tan\varpi\cos\odot. \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (3)$$

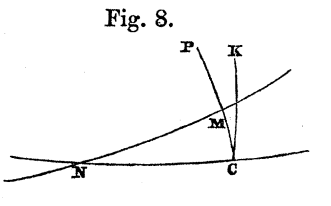
Similarly, if H be the inclination of two planes passing through the line joining the centres of the sun and earth and the poles of the sun and ecliptic respectively, we should obtain by a corresponding figure

$$\tan H=\tan I.\cos(\odot-N), \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad . \quad (4)$$

where I is the inclination of the sun's equator to the ecliptic, and N the longitude of the ascending node.

Further, let L be the heliographical longitude of the earth, and D its latitude, then it will easily be deduced from figure 8, in which NC is part of the ecliptic, NM the solar equator, N the ascending node, C the position of the earth, K the pole of the ecliptic, P the pole of the sun, that

Fig. 8.



$$L = N\,M,$$
$$D \text{ (negative)} = MC,$$

whence, since $M\,N\,C = I$, $N\,C = 180° + \odot - N$, $N\,M\,C = 90°$,

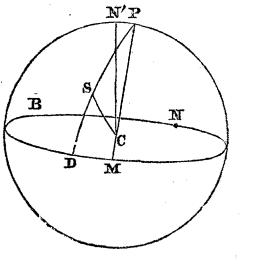
$$\tan L = \cos I \tan(\odot - N). \quad (5)$$
$$\sin D = \sin I \sin(\odot - N). \quad (6)$$

These four auxiliary angles, viz. G, H, L, D, have been calculated for every degree of the arguments, viz. $\odot$ for G, and $(\odot - N)$ for H, L, and D; and in these Tables, as mentioned in § 4, the elements I and N employed by us are those arrived at by Mr. CARRINGTON.

12. To pass now to the last step in the reduction, let P (fig. 9) be the sun's north pole, N′ the celestial pole, and N′C the meridian through the apparent centre of the sun; further, let N D M be the solar equator, N the position of the ascending node, and S that of a spot.

Then $N\,B\,D = l$ is the heliographical longitude of the spot reckoned along the solar equator from N. Also $NBDM = L$ = heliographic longitude of the earth.

Fig. 9.



$D\,S = \lambda$ is the spot's heliographical latitude.

Now, in the triangle P S C the angle P C S is obviously the algebraical sum of the angle S C N′, or the angle of position of the spot S (=P), reckoned from north towards east, and the angle $N'\,C\,P = G + H$.

Let angle $S\,C\,P = S\,C\,N' + N'\,C\,P = P + G + H = \chi$, further we have $SC = \varrho$ = angular distance from centre, and $P\,C = 90° - D$.

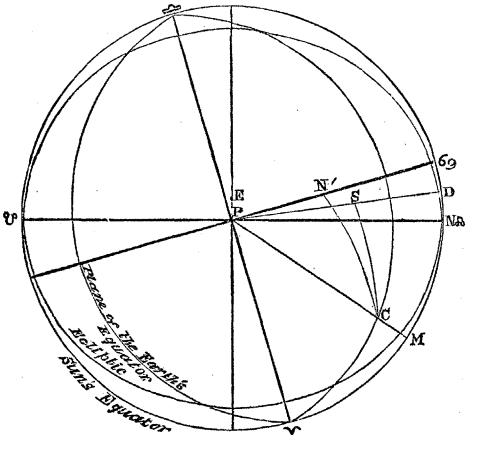
Figure 10, which has been suggested to us by Sir JOHN HERSCHEL, places these facts in a more general and probably also clearer manner before the reader. In this figure the sun's equator is taken for a plane of projection, and the spherical triangles are referred to the centre of the sun. The letters are identical with those in fig. 9, while C in fig. 10, looked at from without by a spectator placed in the line of the earth's situation, corresponds to C in fig. 9, the centre of the visible disk.

The triangle P S C will give us, by well-known fundamental formulæ of spherical trigonometry,

$$\sin\lambda = \cos\varrho \sin D + \sin\varrho \cos D \cos\chi,$$
$$\sin(L - l) = \sin\chi \sin\varrho \sec\lambda,$$

from which the heliographical coordinates are at once obtained.

Fig. 10.



The following page exhibits the final reduction of all spots observed on August 25, 1862, the measurements of which, with their primary reductions, have been given on pages 10 & 11 above. On the pages 45 *et seq.* the results of the positional elements for the spots observed during 1862 and 1863 are given under the following heads:—

1. Year, month, and day.
2. Running number.
3. Mean time of sun-picture.
4. Number of group in the Kew Catalogue.
5. Distance from centre.
6. Angle of position.
7. Heliographical longitude from node.
8. True heliographical longitude.
9. Heliographical latitude.
10. Letter denoting the particular spot of the group.

The "heliographical longitude" is derived from the "longitude from node" in the following manner. Taking that great circle through the sun's poles, which at the epoch 1854·0 passed through the ascending node as first meridian, and assuming preliminarily 25·38 days as the sun's period of rotation, this prime meridian will obviously again coincide with the node at the periods

$$1854{\cdot}0+25^{d}{\cdot}38,\ 1854{\cdot}0+2(25^{d}{\cdot}38),\ 1854+n(25^{d}{\cdot}38).$$

A spot being on the sun at the time 1854·0, the calculated longitude of which was found to be 0°·0, would be on the prime meridian; but the calculated longitude of the same spot, a day afterwards, would be found to be $\frac{360^{\circ}}{25{\cdot}38}=14^{\circ}\,11'\,3''{\cdot}84$ (disregarding for our present purpose all modifying influences), this being its "longitude from node."

To reduce this longitude to the true heliographical, a small table is necessary, showing at a glance the civil dates of the times $1854{\cdot}0+25^{d}{\cdot}38+25^{d}{\cdot}38+\ldots\ldots$

For a sun-picture taken intermediately between two coincidences of the prime meridian with the nodal point, the time since the preceding coincidence is found by subtraction; and calling this time T, we have obviously

$$\text{longitude of prime meridian from node}=\frac{T\,.\,360^{\circ}}{25{\cdot}38}=l';$$

and if the longitude from node of a spot be$=l$, its angular distance from the prime meridian, reckoning always from west to east, will be

$$l-l',=\text{the "Heliographical Longitude."}$$

1862.	August 25 ($10^h\ 37^m$).	P.	August 25.	Q.	August 25.	R.	August 25.	S.	August 25.	s.	1862.
Log $\frac{r}{R}$.....	9·95145	124° 9′·3	9·94559	299° 22′·9	9·11313	355° 55′·6	9·68681	324° 16′·3	9·66338	332° 39′·1	P.
Log (R).....	1·201	−19 24·7	1·201	−19 24·7	1·201	−19 24·7	1·201	−19 24·7	1·201	−19 24·7	G+H.
Log ϱ'.....	1·152	104 44·6	1·147	279 58·2	0·314	336 30·9	0·888	304 51·6	0·864	313 14·4	χ.
Log cos ϱ ...	9·65446	63 24·6	9·67611	61 54·9	9·99635	7 27·3	9·94198	29 5·4	9·94868	27 25·8	$\varrho+\varrho'$.
Log sin D ...	+9·09111	14·2	+9·09111	14·0	+9·09111	2·1	+9·09111	7·7	+9·09111	7·3	ϱ'.
Log (1)	+8·74557	63 10·4	+8·76722	61 40·9	+9·08746	7 25·2	+9·03309	28 57·7	+9·03979	27 18·5	ϱ.
Log cos χ ...	−9·40567	+9·98546	+9·23837	−9·99339	+9·96245	−9·60044	+9·75707	−9·91411	+9·83573	−9·86242	Log sin χ.
Log sin ϱ ...	9·95055	9·95055	9·94464	9·94464	9·11106	9·11106	9·68505	9·68505	9·66161	9·66161	Log sin ϱ.
Log cos D ...	9·99667	0·00634	9·99667	0·00977	9·99667	0·01287	9·99667	0·03436	9·99667	0·04247	Log sec λ.
Log (2)	−9·35289	+9·94235	+9·17968	−9·94780	+9·07018	−8·72437	+9·43879	−9·63352	+9·49401	−9·56650	Log sin (L−l).
(1)	+0·05566	257° 42′·3	+0·05851	257° 42′·3	+0·12231	257° 42′·3	+0·10792	257° 42′·3	+0·10960	257° 42′·3	L.
(2)	−0·22537	+61° 7′·6	+0·15123	−62° 28′·0	+0·11754	−3° 2′·3	+0·27466	−25° 28′·3	+0·31189	−21° 37′·6	L−l.
Sum	−0·16971	196° 34′·7	+0·20974	320° 10′·3	+0·23985	260° 44′·6	+0·38258	283° 10′·6	+0·42149	279° 19′·9	l.
Log sin λ ...	−9·22971	− 9° 46′	+9·32168	+12° 6′	+9·37994	+ 13° 53′	+9·58272	+22° 30′	+9·62479	24° 56′	λ.

Measurement of the Areas of Sun-spots.

13. The second part of the results of our researches published in this paper, exhibits the amount of spotted surface for every day on which a solar photogram was taken, expressed as a fraction of the visible hemisphere. The information is given under two heads, viz. the area covered by the *penumbra*, *umbra*, and *whole* of the spots forming *one* group, and also the same values for all groups, taken together, which were visible on each day, thus enabling us to trace not only the behaviour, as regards increase or decrease, of every group, but also to express numerically the variations in the energy manifested by the sun's surface from time to time.

We had previously published the area-measurements of the whole of Mr. CARRINGTON'S observations, and were induced to devote to his sketches the considerable labour which these measurements require, on account of the excellence and care with which they were executed. But if, as every one will probably admit, these area-measurements are a more scientific representation of the sun's activity than the mere numbering of the groups, it must also be conceded that solar photograms are a more trustworthy basis for such measurements than drawings, however carefully the sun's surface may be delineated.

We shall therefore continue these measurements from year to year, convinced that they will afford materials of very great scientific value.

14. The method adopted for measuring the areas is to place a plate of glass engraved with a series of small squares in contact with the spot to be measured, and to note independently how many squares and fractional parts of a square were occupied by the umbra, the penumbra, and the whole spot; if the number of squares occupied by the whole spot is equal to the sum of those occupied by the umbra and penumbra separately, then the observation is supposed to have been correctly made. If, in addition to the measurement, we know the angular distance of the spot from the visual centre, we have the elements for ascertaining the area occupied by the spot. This area we have expressed in millionths of the sun's hemispherical surface.

It ought perhaps to be noted that we could not place the engraved square absolutely in contact with the collodion side of the picture, for fear of destroying it; and it was therefore necessary to interpose the thickness of the glass plate betwixt the measuring-squares and the picture. To obviate an objection to the process which might arise from considering that the engraved lines were not precisely in contact with the object measured, an experiment was made which showed that this difference of distance did not occasion a perceptible error in the determination. The area of the square which forms the unit of measurement is $\frac{1}{10,000}$ of a square inch, the side of each square being $\frac{1}{100}$ inch.

To find the mean radius of the sun-pictures, we took for each month of the year two photograms distant from each other by about a fortnight, and found their respective radii to be of the following lengths, expressed in inches:—

January	1·958	May	1·904	September	1·920
	1·963		1·903		1·922
February	1·969	June	1·900	October	1·930
	1·959		1·897		1·943
March	1·956	July	1·900	November	1·949
	1·947		1·907		1·947
April	1·930	August	1·904	December	1·969
	1·927		1·911		1·967

The mean of these gave us 1·9326 as the mean radius, which we adopted in the reduction of the areas measured. The area of each square unit being ·0001 of a square inch, it follows that, if r be the radius of the disk in inches, the area of the visible hemispherical surface will be $2\pi r^2$, and in our pictures

$$=2\times\pi\times(1\cdot9326)^2=23\cdot46734;$$

therefore, at the *centre* of the visual disk, one of these small squares will represent a proportional area of the whole hemispherical surface, viz.

$$=\frac{\cdot0001}{23\cdot46734}=\frac{1}{234673\cdot4},$$

while at an angular distance α from the visual centre the proportion will be

$$\frac{\sec\alpha}{234673\cdot4}.$$

From this formula Table I. is calculated. It gives in the first column the angular distances, in the second the corresponding distances in terms of the radius as unity, and in the following nine columns the number of *millionths* of the sun's hemispherical surface covered in each position by 100, 200 &c. measured squares.

To obtain the required values for a number of squares between 10 and 99, and between 1 and 9, it is, of course, only necessary to cut off from the tabular values one or two decimals. An example will best illustrate the use of the Table.

Let the measurement of a group, situated at a distance from the centre of 0·483 (radius=1), show that the whole of it covered 963 squares; then, since 0·483 corresponds to an angular distance of 29° from the centre, we should find opposite to this distance

for the area of	900	squares	4383 millionths.
„ „	600	„ 2922, ∴ for 60 . .	292·2 „
„ „	300	„ 1461, ∴ for 3 . .	14·61 „
		consequently for 963 squares .	4690 millionths.

The use of a mean radius of the sun-pictures in the above formula will not sensibly affect the correctness of the yearly amount of spotted surface; for in our results the daily amount will be somewhat too small during the time of aphelion, and again slightly too great about the perihelion. But if for any special purposes the amount of spotted surface were to be determined with the greatest precision, the actual radius of each

picture would, of course, have to be employed in the reductions. The variation with the radius is as follows:—

With the smallest radius=1·897 in., the value of one square at the centre is 0·00000442,
„ mean „ =1·933 „ „ „ 0·00000426,
„ greatest „ =1·969 „ „ „ 0·00000411.

Distortion arising from optical deficiencies of the Photoheliograph.

15. The question how far the trustworthiness of solar photograms is limited by the effects of distortion, has caused us considerable anxiety. We have for several years past made various attempts to arrive at a satisfactory solution of this problem, and we have decided that our final discussion of the positional elements of sun-spots for the deduction of the sun's elements shall be preceded by an exhaustive investigation of the matter. At present we regard our researches and their results as only preliminary; but, on account of the importance of the subject for Celestial Photography generally, and in order to convince our readers that the subject is engaging our most earnest attention, we give in the following a short account of our latest steps in the matter.

16. It is obvious that if an image of some distant terrestrial object, which may be supposed to be of constant dimensions, is received through our photoheliograph on a prepared plate, we shall obtain a negative imprint of the object on a well-defined circular disk, which has been produced on the plate by the action of the whole diffused light which enters the object-glass. If the distant object be small, and placed in the axis of the instrument, it will also appear in the centre of the disk which has been produced, while if placed more or less out of the axis, it will also occupy a corresponding position on the photogram. Now in all positions its dimensions ought to be the same, for we supposed these dimensions to remain constant; hence it follows that if a relative change takes place in these dimensions, as determined by careful measurements of the same object in different positions, a distortion takes place in that part of the field where a change is observed,

This principle has been made use of in the following manner. The ornamental pinnacle of the Pagoda erected in the Kew Gardens, which is constructed of a number of rings of metal suspended in a horizontal position by vertical chains fastened to the top piece, was photographed by means of the photoheliograph in a series of twenty-five pictures, taken so as to bring its several parts into varying distances from the centre. The pictures were all taken within a few days, in which no considerable changes could possibly take place in the object itself, and any effect of expansion by changes in the temperature of the air would not sensibly affect the measurements. The distance of the Pagoda from the Observatory is 4398·24 feet*. The figure of the pinnacle, as it appears on the pictures, allows us to measure certain lines, produced photographically by its different

* We take this opportunity to express our great obligation to Colonel Sir Henry James of the Survey Office, who kindly presented us with a sketch of the relative positions of the Observatory and the Pagoda, from which the above numbers are taken.

parts, in directions which are perpendicular to one another. On Plate I., which accompanies this paper, all measurements of those lines which have the same direction are designated W W′, *i. e.* along a radius W W′, while those in a direction perpendicular to the former are designated "along the radius R R′."

All measurements were made with the greatest possible care by means of the Kathetometer of the Observatory, which reads to $\frac{1}{1000}$ of an inch.

17. Every line in the preceding figure being thus measured on the average about five times, so as to reduce errors as far as possible, the means of the measurements were taken; and of those lines for which a sufficient number of measurements existed, so as to trace their behaviour across the field with some degree of certainty, these measurements were represented in the form shown in Plate I. (A), where, however, only six lines are thus shown, although in reality for the behaviour in the direction W W′ ten distinct lines, and for that in the direction R R′ eight lines gave extensive data for our purpose, and therefore eighteen lines were finally employed for our mean results.

The mean radius of the disk produced by the whole light falling upon the plates was found to be 3·267 inches; and this length was subdivided into seven spaces, giving 0·267 inch to the central portion, and drawing concentric circles at distances of half an inch from each other; the central portion, having a radius of 0·267 inch, was considered as the centre; and, from the means of the measurements as above indicated, the behaviour of every line was determined at the centre and at each intersection of these concentric circles with the two radii W W′, R R′. These means are given in the following two Tables, which contain also the behaviour of each separate line, which we have called 1, 2, 3, &c., each of these numbers representing in fact a different object.

Behaviour of eighteen lines, photographed at different distances from the centre of the field in the Kew Photoheliograph.

A. Direction W W′.

Distance from centre, in inches.	Absolute length of each line in English inches at the corresponding distance.										
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	Means.
+3·267	·1500	·1533	·1730	·1655	·1987	·2187	·2017	·1963	·2103	·2103	·1878
+3·000	·1494	·1526	·1708	·1647	·1984	·2156	·2009	·1964	·2100	·2100	·1869
+2·500	·1482	·1515	·1666	·1634	·1976	·2094	·1992	·1967	·2084	·2084	·1849
+2·000	·1469	·1508	·1627	·1623	·1969	·2027	·1985	·1971	·2071	·2071	·1831
+1·500	·1457	·1489	·1587	·1610	·1962	·1962	·1955	·1974	·2060	·2060	·1812
+1·000	·1446	·1479	·1547	·1598	·1955	·1896	·1938	·1978	·2046	·2046	·1793
+0·500	·1408	·1439	·1556	·1586	·1950	·1852	·1920	·1980	·2035	·2035	·1776
Centre.	·1370	·1400	·1586	·1575	·1952	·1859	·1955	·1980	·2023	·2017	·1772
−0·500	·1435	·1424	·1539	·1621	·1952	·1900	·1994	·1980	·2008	·1989	·1784
−1·000	·1446	·1447	·1529	·1623	·1943	·1894	·1936	·1900	·2050	·2058	·1783
−1·500	·1456	·1472	·1564	·1604	·1970	·1928	·1959	·1950	·2074	·2138	·1812
−2·000	·1467	·1495	·1598	·1594	·2000	·1942	·1980	·2010	·2097	·2139	·1832
−2·500	·1509	·1526	·1630	·1595	·2030	·1967	·2000	·2070	·2120	·2144	·1859
−3·000	·1581	·1566	·1644	·1664	·2060	·1998	·2020	·2128	·2145	·2145	·1895
−3·267	·1615	·1584	·1647	·1723	·2078	·2015	·2033	·2160	·2147	·2156	·1916

B. Direction R R′.

Distance from centre, in inches.	Absolute length of each line in English inches at the corresponding distance.								
	11.	12.	13.	14.	15.	16.	17.	18.	Means.
+2·500	·1800	·2008	·2216	·2410	·2630	·2890	·3020	·3250	·2528
+2·000	·1735	·1823	·2070	·2285	·2480	·2749	·2925	·3180	·2406
+1·500	·1651	·1838	·2026	·2264	·2440	·2688	·2868	·3104	·2348
+1·000	·1576	·1850	·2052	·2303	·2466	·2684	·2824	·3025	·2348
+0·500	·1660	·1866	·2078	·2249	·2465	·2633	·2774	·2990	·2339
Centre	·1672	·1812	·1998	·2194	·2395	·2584	·2767	·2976	·2300
−0·500	·1702	·1910	·2071	·2314	·2499	·2681	·2882	·3050	·2389
−1·000	·1695	·1922	·2114	·2333	·2520	·2729	·2928	·3112	·2419
−1·500	·1708	·1924	·2135	·2329	·2532	·2748	·2950	·3150	·2434
−2·000	·1760	·1946	·2142	·2351	·2595	·2771	·2970	·3177	·2464
−2·500	·1812	·1970	·2149	·2371	·2653	·2794	·2994	·3202	·2493

18. The mean results are graphically represented on Plate I. (B) in three curves, which have the distance from the centre for their abscissæ, while the mean length of the lines are the ordinates; both coordinates are given in inches. The curve W W′ shows the behaviour of all lines measured in one direction, the curve R R′ that of those measured in the direction at right angles to the former, and, finally, M M′ exhibits the mean of both. The irregularity of the curve R R′ is partly owing to the circumstance that the number of observations on which it is founded is considerably less than those at our disposal for the curve W W′; and it is our intention to repeat the whole investigation under more favourable circumstances. It is particularly our wish to place the determination on a more correct basis by erecting at a considerable distance from the photoheliograph a suitable scale of equal parts, which when repeatedly photographed in different positions, will in our opinion supply us with very correct constants of distortion. A similar contrivance would be useful in ascertaining the optical distortion of ordinary photographic lenses. In the meantime the following two facts may be regarded as established:—1st, that the image of any object photographically depicted is liable to a distortion, which varies at different distances from the centre of the field, and the amount of which may be determined for every instrument by methods similar to that employed by ourselves; 2nd, that in our case the image of an object is larger when formed near the edge of the field than at the centre, and that the amount of elongation of a unit of length at the centre increases with its distance from the centre. Taking the most trustworthy of our curves, W W′, as a preliminary result, we find the following values for the unit at the centre, when it passes to other positions in the field, the latter being given in fractions of the radius:—

Distance in parts of radius.	Corresponding length of central unit.
+1·000	1·06082
+0·918	1·05474
+0·765	1·04345
+0·612	1·03330
+0·459	1·02257
+0·306	1·01185

Distance in parts of radius.	Corresponding length of central unit.
+0·153	1·00226
±0·000	1·00000
−0·153	1·00677
−0·306	1·00621
−0·459	1·02257
−0·612	1·03386
−0·765	1·04910
−0·918	1·07041
−1·000	1·08126

19. The present state of this inquiry is not sufficiently far advanced to justify us in applying corrections to the calculated positions of sun-spots on account of the effect of distortion on the angular distances from the centre of the sun. The point will, however, have our careful attention when finally discussing the positions; and we hope to be able to give thoroughly satisfactory constants for the effect of displacement by our Photoheliograph.

With regard to the correctness of the calculated areas, it appears from the above that the side of our square unit, being ·01 of an inch at the centre, will in consequence of the elongation towards the limb be ·0106082 inch at the edge, and the areas measured there will obviously have to be diminished in the ratio of $(\cdot0106082)^2 : (\cdot01)^2$, and similarly at other distances, as seen in the following Table, which shows the numerical effect of the elongation on the values which we have assumed in our reduction for the square unit at different distances from the centre.

Distance from centre in terms of radius.	Proportion in which the areas ought to be diminished.	Assumed values for the square unit, without regard to elongation.	In millionths of sun's surface.	Corrected values, taking into account elongation.	In millionths of sun's surface.
+1·000	1·1125339 : 1	∞	∞	∞	∞
+0·918	1·1124764 : 1	·00001050	10	·00000944	9
+0·765	1·0887879 : 1	·00000663	7	·00000609	6
+0·612	1·0677089 : 1	·00000541	5	·00000507	5
+0·459	1·0454294 : 1	·00000478	5	·00000457	5
+0·306	1·0238404 : 1	·00000448	4	·00000437	4
+0·153	1·0045251 : 1	·00000431	4	·00000431	4
±0·000	1·0000000 : 1	·00000426	4	·00000426	4
−0·153	1·0135858 : 1	·00000431	4	·00000425	4
−0·306	1·0124586 : 1	·00000448	4	·00000442	4
−0·459	1·0454294 : 1	·00000478	5	·00000457	5
−0·612	1·0688665 : 1	·00000541	5	·00000506	5
−0·765	1·1006108 : 1	·00000663	7	·00000602	6
−0·918	1·1457776 : 1	·00001050	10	·00000916	9
−1·000	1·1691232 : 1	∞	∞	∞	∞

It will be seen from this Table that, our fractional values of the areas being expressed in millionths, the corrected values differ only from those employed by us in all spots which are very near the limb, and also in very large spots; in both these cases, however, the probable error of the measurements is not inconsiderable; and to introduce a correction on account of elongation was therefore considered by us a hardly necessary refinement in the calculations.

TABLE I.—Giving the areas in millionths of the Sun's visible hemisphere, corresponding to 100, 200, &c. measured unit-squares, for every degree, and also in terms of the radius=1.

One square at the centre of Sun=·00000426, the surface of the visible hemisphere being 1.

Distance from centre.		100.	200.	300.	400.	500.	600.	700.	800.	900.
In deg.	In terms of radius.									
0	0·000 to 0·009	426	852	1278	1704	2130	2556	2982	3408	3834
1	0·009 „ 0·026	426	852	1278	1704	2130	2556	2982	3408	3834
2	0·026 „ 0·044	426	852	1278	1704	2130	2556	2982	3408	3834
3	0·044 „ 0·061	427	854	1281	1708	2135	2562	2989	3416	3843
4	0·061 „ 0·078	427	854	1281	1708	2135	2562	2989	3416	3843
5	0·078 „ 0·096	428	856	1284	1712	2140	2568	2996	3424	3852
6	0·096 „ 0·113	428	856	1284	1712	2140	2568	2996	3424	3852
7	0·113 „ 0·130	429	858	1287	1716	2145	2574	3003	3432	3861
8	0·130 „ 0·148	430	860	1290	1720	2150	2580	3010	3440	3870
9	0·148 „ 0·165	431	862	1293	1724	2155	2586	3017	3448	3879
10	0·165 „ 0·182	433	866	1299	1732	2165	2598	3031	3464	3897
11	0·182 „ 0·199	434	868	1302	1736	2170	2604	3038	3472	3906
12	0·199 „ 0·216	436	872	1308	1744	2180	2616	3052	3488	3924
13	0·216 „ 0·233	437	874	1311	1748	2185	2622	3059	3496	3933
14	0·233 „ 0·250	439	878	1317	1756	2195	2634	3073	3512	3951
15	0·250 „ 0·267	441	882	1323	1764	2205	2646	3087	3528	3969
16	0·267 „ 0·284	443	886	1329	1772	2215	2658	3101	3544	3987
17	0·284 „ 0·301	446	892	1338	1784	2230	2676	3122	3568	4014
18	0·301 „ 0·317	448	896	1344	1792	2240	2688	3136	3584	4032
19	0·317 „ 0·334	451	902	1353	1804	2255	2706	3157	3608	4059
20	0·334 „ 0·350	453	906	1359	1812	2265	2718	3171	3624	4077
21	0·350 „ 0·367	456	912	1368	1824	2280	2736	3192	3648	4104
22	0·367 „ 0·383	460	920	1380	1840	2300	2760	3220	3680	4140
23	0·383 „ 0·399	463	926	1389	1852	2315	2778	3241	3704	4167
24	0·399 „ 0·415	466	932	1398	1864	2330	2796	3262	3728	4194
25	0·415 „ 0·431	470	940	1410	1880	2350	2820	3290	3760	4230
26	0·431 „ 0·446	474	948	1422	1896	2370	2844	3318	3792	4266
27	0·446 „ 0·462	478	956	1434	1912	2390	2868	3346	3824	4302
28	0·462 „ 0·477	483	966	1449	1932	2415	2898	3381	3864	4347
29	0·477 „ 0·492	487	974	1461	1948	2435	2922	3409	3896	4383
30	0·492 „ 0·508	492	984	1476	1968	2460	2952	3444	3936	4428
31	0·508 „ 0·522	497	994	1491	1988	2485	2982	3479	3976	4473
32	0·522 „ 0·537	502	1004	1506	2008	2510	3012	3514	4016	4518
33	0·537 „ 0·552	508	1016	1524	2032	2540	3048	3556	4064	4572
34	0·552 „ 0·566	514	1028	1542	2056	2570	3084	3598	4112	4626
35	0·566 „ 0·581	520	1040	1560	2080	2600	3120	3640	4160	4680
36	0·581 „ 0·595	527	1054	1581	2108	2635	3162	3689	4216	4743
37	0·595 „ 0·609	534	1068	1602	2136	2670	3204	3738	4272	4806
38	0·609 „ 0·623	541	1082	1623	2164	2705	3246	3787	4328	4869
39	0·623 „ 0·636	548	1096	1644	2192	2740	3288	3836	4384	4932
40	0·636 „ 0·649	556	1112	1668	2224	2780	3336	3892	4448	5004
41	0·649 „ 0·663	565	1130	1695	2260	2825	3390	3955	4520	5085
42	0·663 „ 0·676	573	1146	1719	2292	2865	3438	4011	4584	5157
43	0·676 „ 0·688	583	1166	1749	2332	2915	3498	4081	4664	5247
44	0·688 „ 0·701	592	1184	1776	2368	2960	3552	4144	4736	5328
45	0·701 „ 0·713	603	1206	1809	2412	3015	3618	4221	4824	5427
46	0·713 „ 0·725	613	1226	1839	2452	3065	3678	4291	4904	5517
47	0·725 „ 0·737	625	1250	1875	2500	3125	3750	4375	5000	5625
48	0·737 „ 0·749	637	1274	1911	2548	3185	3822	4459	5096	5733
49	0·749 „ 0·760	650	1300	1950	2600	3250	3900	4550	5200	5850
50	0·760 „ 0·772	663	1326	1989	2652	3315	3978	4641	5304	5967
51	0·772 „ 0·783	677	1354	2031	2708	3385	4062	4739	5416	6093

TABLE I. (continued).

Distance from centre.		100.	200.	300.	400.	500.	600.	700.	800.	900.
In deg.	In terms of radius.									
52	0·783 to 0·793	692	1384	2076	2768	3460	4152	4844	5536	6228
53	0·793 „ 0·804	708	1416	2124	2832	3540	4248	4956	5644	6372
54	0·804 „ 0·814	725	1450	2175	2900	3625	4350	5075	5800	6525
55	0·814 „ 0·824	743	1486	2229	2972	3715	4458	5201	5944	6687
56	0·824 „ 0·834	762	1524	2286	3048	3810	4572	5334	6096	6858
57	0·834 „ 0·843	782	1564	2346	3128	3910	4692	5474	6256	7038
58	0·843 „ 0·853	804	1608	2412	3216	4020	4824	5628	6432	7236
59	0·853 „ 0·862	827	1654	2481	3308	4135	4962	5789	6616	7443
60	0·862 „ 0·870	852	1704	2556	3408	4260	5112	5964	6816	7668
61	0·870 „ 0·879	879	1758	2637	3516	4395	5274	6153	7032	7911
62	0·879 „ 0·887	908	1816	2724	3632	4540	5448	6356	7264	8172
63	0·887 „ 0·895	939	1878	2817	3756	4695	5634	6573	7512	8451
64	0·895 „ 0·903	972	1944	2916	3888	4860	5832	6804	7776	8748
65	0·903 „ 0·910	1008	2016	3024	4032	5040	6048	7056	8064	9072
66	0·910 „ 0·917	1048	2096	3144	4192	5240	6288	7336	8384	9432
67	0·917 „ 0·924	1091	2182	3273	4364	5455	6546	7637	8728	9819
68	0·924 „ 0·930	1138	2276	3414	4452	5690	6828	7966	8904	10242
69	0·930 „ 0·937	1189	2378	3567	4756	5945	7134	8323	9512	10701
70	0·937 „ 0·943	1246	2492	3738	4984	6230	7476	8722	9968	11214
71	0·943 „ 0·948	1309	2618	3927	5236	6545	7854	9163	10472	11781
72	0·948 „ 0·954	1379	2758	4137	5516	6895	8274	9653	11032	12411
73	0·954 „ 0·959	1457	2914	4371	5828	7285	8742	10199	11656	13113
74	0·959 „ 0·964	1546	3092	4638	6184	7730	9276	10822	12368	13914
75	0·964 „ 0·968	1646	3292	4938	6584	8230	9876	11522	13168	14814
76	0·968 „ 0·972	1761	3522	5283	7144	8805	10566	12327	14288	15849
77	0·972 „ 0·976	1894	3788	5682	7576	9470	11364	13258	15152	17046
78	0·976 „ 0·980	2050	4100	6150	8200	10250	12300	14350	16400	18450
79	0·980 „ 0·983	2233	4466	6699	8932	11165	13398	15631	17864	20097
80	0·983 „ 0·986	2454	4908	7362	9816	12270	14724	17178	19632	22086
81	0·986 „ 0·989	2724	5448	8172	10896	13620	16344	19068	21792	24516
82	0·989 „ 0·991	3062	6124	9186	12248	15310	18372	21434	24496	27558
83	0·991 „ 0·994	3497	6994	10491	13988	17485	20982	24479	27976	31473
84	0·994 „ 0·995	4077	8154	12231	16308	20385	24462	28539	32616	36693
85	0·995 „ 0·997	4889	9778	14667	19556	24445	29334	34223	39112	44001
86	0·997 „ 0·998	6109	12218	18327	24436	30545	36654	42763	48872	54981
87	0·998 „ 0·999	8142	16284	24426	32568	40710	48852	56994	65136	73278
88	0·999 „ 0·999	12210	24420	36630	48840	61050	73260	85470	97680	109890
89	0·999 „ 1·000	24416	48832	73248	97664	122080	146496	170912	195328	219744

TABLE II.—Showing the areas of all Sun-spots observed at the Kew Observatory from February 7th, 1862 to December 31st, 1863.

The areas are expressed in millionths of the Sun's visible hemisphere.

Date.	Group.	Mean distance from centre, radius=1.	Area of Penumbra.	Area of Umbra.	Area of whole Spot.	Whole for the day.		
						Penumbra.	Umbra.	Whole Spot.
1862.								
Feb. 7.	226	0·850	64	16	80			
	227	0·793	35	0	35			
	228	0·705	78	12	90			
	229	0·525	25	5	30			
	230	0·524	30	10	40			
	231	0·345	18	0	18			
	232	0·890	469	38	507			
	233	0·905	221	0	221	940	81	1021
8.	226	0·934	71	0	71			
	227	0·880	9	0	9			
	228	0·825	60	0	60			
	229	0·655	34	23	56			
	230	0·634	38	0	38			
	232	0·770	232	33	265			
	233	0·865	290	17	307	734	73	806
10.	229	0·911	147	31	178			
	230	0·810	72	29	101			
	232	0·485	513	100	613			
	233	0·586	208	82	290			
	234	0·949	345	55	400			
	235	0·775	15	12	27			
		0·775	34	20	54	1334	329	1663
16.	232	0·902	486	165	651			
	233	0·772	169	0	169			
	234	0·288	71	18	89			
	236	0·263	26	0	26			
	237	0·474	53	0	53			
	238	0·747	274	0	274			
	239	0·234	53	0	53	1132	183	1315
20.	234	0·902	282	29	311			
	239	0·857	45	21	66			
	240	0·910	178	42	220			
	241	0·304	18	0	18	523	92	615
21.	234	0·971	319	53	372			
	239	0·936	71	24	95			
	240	0·807	174	36	210			
	241	0·710	0	6	6			
	242	0·690	106	36	142	670	155	825
28.	240	0·686	129	41	170			
	242	0·852	330	297	627			
	243	0·652	175	119	294			
	244	0·252	159	0	159			
	245	0·345	154	68	222			
	247	0·730	119	94	212			
	248	0·947	131	65	196	1197	684	1880
Mar. 1.	240	0·822	119	52	171			
	242	0·940	324	349	673			
	243	0·537	234	61	295			
	244	0·062	94	34	128			
	245	0·160	181	82	263			
	247	0·619	86	27	114			
	248	0·870	88	44	132	1126	649	1776

TABLE II. (continued).

Date.	Group.	Mean distance from centre, radius = 1.	Area of Penumbra.	Area of Umbra.	Area of whole Spot.	Whole for the day.		
						Penumbra.	Umbra.	Whole Spot.
1862.								
Mar. 3.	243	0·463	169	53	222			
	244	0·458	91	14	105			
	245	0·309	92	34	125			
	247	0·480	122	24	146			
	248	0·555	57	10	67			
	249	0·720	37	18	55	568	153	720
4.	243	0·541	229	61	290			
	244	0·627	74	25	99			
	245	0·489	34	34	68			
	247	0·534	15	10	25			
	248	0·408	23	19	42			
	249	0·554	41	15	56	416	164	580
5.	243	0·673	183	34	218			
	244	0·793	85	21	106			
	245	0·679	35	12	47			
	248	0·286	37	0	37			
	249	0·360	55	0	55			
	250	0·982	0	290	290	395	357	753
7.	243	0·967	296	82	379			
	248	0·230	17	0	17			
	250	0·706	277	48	326			
	251	0·941	125	0	125	715	130	847
19.	252	0·739	108	25	134			
	253	0·521	57	0	57			
	254	0·832	34	11	46	199	36	237
24.	252	0·297	62	18	80	62	18	80
27.	252	0·831	84	0	84	84	0	84
31.	255	0·705	175	30	205			
	256	0·921	251	76	327	426	106	532
April 3.	255	0·204	50	0	50			
		0·180	52	0	52			
	256	0·546	239	51	290			
	257	0·150	420	101	521			
	258	0·440	47	0	47			
	259	0·894	192	42	235	1000	194	1195
4.	255	0·456	201	14	215			
	256	0·403	224	74	298			
	257	0·175	390	138	528			
	258	0·278	115	27	142			
	259	0·777	162	27	190	1092	280	1373
12.	259	0·874	79	53	132			
	260	0·944	65	0	65	144	53	197
13.	259	0·960	93	62	155			
	260	0·774	20	14	34			
	261	0·985	466	0	466			
	262	0·443	62	0	62	641	76	717
14.	260	0·710	24	0	24			
	261	0·934	297	131	428			
	262	0·615	38	16	54			
	263	0·204	17	0	17	376	147	523
15.	261	0·777	291	115	406			
	263	0·369	5	0	5			
	264	0·869	26	8	34			
	265	0·960	402	0	402	724	123	847
17.	261	0·485	312	78	390			
	263	0·960	108	0	108			

TABLE II. (continued).

Date.	Group.	Mean distance from centre, radius = 1.	Area of Penumbra.	Area of Umbra.	Area of whole Spot.	Whole for the day.		
						Penumbra.	Umbra.	Whole Spot.
1862.								
Apr. 17.	264	0·621	5	16	21			
	265	0·790	256	62	318	681	156	837
20.	261	0·195	282	52	334			
	265	0·285	111	27	138			
	266	0·510	50	45	95	443	124	567
21.	261	0·388	278	55	333			
	265	0·166	26	4	30			
	266	0·380	64	50	115			
	267	0·665	29	29	57	397	138	535
22.	261	0·595	283	48	331			
	265	0·248	22	18	40			
	266	0·209	57	17	74			
	267	0·460	38	0	38	400	83	483
23.	261	0·755	253	65	318			
	265	0·439	43	19	62			
	266	0·273	31	9	40			
	267	0·410	51	0	51			
	268	0·930	0	12	12	378	105	483
24.	261	0·892	244	66	310			
	265	0·665	52	0	52			
	266	0·458	57	0	57			
	267	0·185	113	35	148			
		0·220	78	44	122	544	145	689
25.	261	0·976	246	61	307			
	265	0·776	54	0	54			
	266	0·638	33	6	39			
	267	0·080	265	55	321			
	269	0·962	185	0	185	783	122	906
26.	267	0·310	327	45	372			
	269	0·850	249	96	346	576	141	718
27.	267	0·710	349	36	386			
	269	0·505	302	89	391			
	270	0·955	131	29	160			
	271	0·471	63	0	63	845	154	1000
28.	267	0·690	308	56	364			
	269	0·540	305	81	386			
	270	0·877	92	48	140			
	271	0·102	26	9	34	731	194	924
29.	267	0·850	145	24	169			
	269	0·385	315	97	414			
	270	0·754	32	32	65			
	271	0·160	52	43	95			
	272	0·873	40	31	70	584	227	813
30.	267	0·955	102	44	146			
	269	0·185	239	65	304			
	270	0·587	100	26	126			
	271	0·390	21	35	56			
	272	0·958	131	73	204			
	273	0·928	80	23	102	673	266	938
May 1.	269	0·164	685	194	879			
	270	0·409	84	37	121			
	271	0·575	36	10	47			
	273	0·965	181	49	230			
	274	0·984	98	270	368	1084	560	1645
2.	269	0·350	935	283	1217			
		0·314	94	40	134			

TABLE II. (continued).

Date.	Group.	Mean distance from the centre, radius = 1.	Area of Penumbra.	Area of Umbra.	Area of whole Spot.	Whole for the day.		
						Penumbra.	Umbra.	Whole Spot.
1862.								
May 2.	270	0·311	85	45	130			
	273	0·698	41	12	53			
	274	0·915	136	21	157	1291	401	1691
5.	269	0·860	1174	314	1489			
	270	0·602	43	27	69			
	273	0·303	45	18	63			
	274	0·397	56	37	92			
	275	0·960	371	278	649	1689	674	2362
8.	273	0·673	46	23	69			
	274	0·682	17	35	52			
	275	0·562	308	103	411			
	276	0·654	90	45	136			
	277	0·941	87	62	149	548	268	817
9.	273	0·813	51	36	87			
	274	0·775	74	8	81			
	275	0·396	329	116	444			
	276	0·476	77	58	135			
	277	0·844	105	48	153	636	266	900
10.	273	0·930	59	36	95			
	274	0·910	42	0	42			
	275	0·262	357	101	459			
	276	0·264	40	22	62			
	277	0·683	76	35	111			
	278	0·928	50	40	89	624	234	858
12.	275	0·410	42	9	51			
	276	0·375	0	14	14			
	277	0·090	317	103	419			
	278	0·603	75	37	112			
	279	0·870	62	53	114			
	281	0·705	145	36	181	641	252	891
13.	275	0·615	5	5	11			
	276	0·525	75	0	75			
	277	0·238	263	88	351			
	278	0·243	44	26	70			
	279	0·662	130	56	186			
	281	0·524	60	0	60	577	175	753
16.	275	0·920	273	425	698			
	276	0·905	50	40	91			
	277	0·462	29	14	43			
	279	0·592	37	16	53			
	278	0·118	154	39	193			
	281	0·256	44	26	71			
	282	0·896	87	49	136			
	283	0·333	9	14	23	683	623	1308
17.	275	0·986	0	712	712			
	276	0·763	20	13	33			
	277	0·608	16	32	48			
	278	0·223	118	57	175			
	279	0·567	42	21	62			
	281	0·148	65	47	112			
	282	0·807	72	22	94			
	284	0·522	30	0	30	363	904	1266
18.	277	0·781	20	20	41			
	278	0·425	132	66	197			
	279	0·414	121	0	121			
	281	0·275	84	27	111			

TABLE II. (continued).

Date.	Group.	Mean distance from centre, radius=1.	Area of Penumbra.	Area of Umbra.	Area of whole Spot.	Whole for the day.		
						Penumbra.	Umbra.	Whole Spot.
1862.								
May 18.	282	0·644	50	28	78	407	141	548
19.	278	0·607	160	53	214			
	279	0·210	65	48	113			
	281	0·460	14	10	24			
	282	0·462	77	19	97	316	130	448
22.	278	0·974	265	284	549			
	279	0·527	40	45	85			
	281	0·912	10	31	42			
	282	0·294	58	22	80			
	285	0·933	226	250	476	599	632	1232
24.	279	0·880	0	18	18			
	282	0·677	47	23	70			
	285	0·670	413	246	659			
	286	0·829	91	69	160			
	287	0·957	146	117	262			
	289	0·902	10	0	10	707	473	1179
26.	285	0·262	388	123	512			
	286	0·497	25	20	44			
	287	0·704	338	157	494			
	288	0·892	28	9	38			
	289	0·542	15	10	25	794	319	1113
29.	285	0·425	183	61	244			
	286	0·326	27	14	41			
	287	0·389	171	28	199			
	288	0·389	218	83	301			
	289	0·936	452	143	594	1051	329	1379
June 1.	286	0·943	75	12	87			
	287	0·654	62	17	79			
	288	0·340	353	91	444			
	289	0·488	326	73	399			
	290	0·445	52	38	90			
	291	0·572	26	5	31			
	292	0·755	474	110	585			
	293	0·957	772	248	1020	2140	594	2735
2.	287	0·775	88	47	135			
	288	0·525	311	95	407			
	289	0·303	331	76	408			
	290	0·617	189	76	265			
	291	0·370	18	0	18			
	292	0·625	575	131	707			
	293	0·875	624	255	879	2136	680	2819
3.	287	0·926	158	89	250			
	288	0·771	239	80	318			
	289	0·104	312	77	389			
	290	0·794	255	99	354			
	291	0·090	73	0	73			
	292 {	0·370	630	166	796			
	292 {	0·375	37	9	46			
	293	0·715	570	190	760			
	294	0·057	60	17	77	2334	727	3063
4.	287	0·971	106	106	211			
	288	0·863	264	60	324			
	289	0·204	183	61	244			
	290	0·891	169	122	291			
	291	0·155	43	4	47			
	292	0·260	547	119	666			

TABLE II. (continued).

Date.	Group.	Mean distance from centre, radius=1.	Area of Penumbra.	Area of Umbra.	Area of whole Spot.	Whole for the day.		
						Penumbra.	Umbra.	Whole Spot.
1862.								
June 4.	293	0·595	780	211	991			
	294	0·187	52	13	65			
	295	0·850	24	16	40	2068	712	2879
7.	289	0·770	199	60	259			
	292	0·537	442	66	508			
	293	0·185	642	187	829			
	294	0·776	115	135	250			
	295	0·489	112	29	141			
	296	0·296	18	18	37	1528	495	2024
8.	289	0·902	224	58	282			
	292	0·700	574	124	699			
	293	0·328	681	203	884			
	294	0·911	105	147	251			
	295	0·332	185	45	230			
	297	0·321	68	36	104	1837	613	2450
9.	289	0·982	223	201	424			
	292	0·866	417	136	554			
	293	0·550	620	122	742			
	295	0·333	207	54	262			
	297	0·650	56	56	113	1523	569	2095
10.	292	0·942	299	100	399			
	293	0·694	574	154	728			
	295	0·445	218	43	261			
	297	0·712	115	42	157			
	298	0·293	22	27	49			
	299	0·539	25	15	41	1253	381	1635
11.	292	0·990	0	245	245			
	293	0·836	649	524	1173			
	295	0·642	161	50	211			
	297	0·884	200	18	218			
	298	0·472	58	29	87			
	299	0·349	5	14	18			
	300	0·367	2	2	4			
	301	0·970	176	229	404			
	302	0·438	57	14	71	1308	1125	2431
13.	295	0·911	31	31	63			
	298	0·812	7	22	29			
	300	0·240	9	4	13			
	301	0·831	831	229	1059			
	302	0·432	33	33	66			
	303	0·896	253	87	339	1164	406	1569
14.	295	0·979	20	41	61			
	300	0·424	14	0	14			
	301	0·725	1031	212	1244			
	302	0·633	22	22	44			
	303	0·779	332	68	399			
	304	0·980	205	123	328	1624	466	2090
15.	300	0·623	22	0	22			
	301	0·583	1302	285	1586			
	302	0·803	21	21	42			
	303	0·611	416	81	498			
	304	0·888	141	56	197			
	305	0·952	151	83	234	2053	526	2579
16.	301	0·463	1377	382	1758			
	303	0·430	240	85	324			
	304	0·748	147	57	204			

TABLE II. (continued).

Date.	Group.	Mean distance from centre, radius=1.	Area of Penumbra.	Area of Umbra.	Area of whole Spot.	Whole for the day.		
						Penumbra.	Umbra.	Whole Spot.
1862.								
June 16.	305	0·858	99	41	140	1863	565	2426
17.	301	0·405	1313	266	1580			
	303	0·263	181	48	229			
	304	0·588	174	63	237			
	305	0·736	37	31	69			
	306	0·811	0	7	7	1705	415	2122
18.	301	0·481	1329	292	1622			
	303	0·208	52	26	78			
	304	0·392	153	65	218			
	305	0·464	24	14	39			
	307	0·546	20	15	36			
	308	0·789	21	42	62	1599	454	2055
23.	301	0·967	362	132	494			
	303	0·773	34	14	47			
	304	0·645	33	44	78			
	305	0·329	18	9	27			
	309	0·525	50	30	80			
	310	0·659	203	62	265			
	311	0·721	123	43	165			
	311	0·638	22	22	44			
	312	0·720	31	18	49			
	313	0·664	11	23	34			
	314	0·705	314	90	404			
	315	0·795	255	113	368			
	316	0·871	369	70	439			
	317	0·927	80	45	125	1905	715	2619
24.	311	0·884	45	36	82			
	312	0·543	61	5	66			
	313	0·414	28	14	42			
	314	0·500	261	89	349			
	315	0·531	351	115	467			
	316	0·697	444	124	568			
	317	0·801	99	35	134	1289	418	1708
25.	304	0·892	28	9	38			
	305	0·741	64	25	89			
	309	0·878	35	18	53			
	310	0·938	274	75	349			
	311	0·986	147	123	270			
	312	0·353	18	9	27			
	313	0·243	26	18	44			
	314	0·263	242	75	317			
	315	0·404	391	93	485			
	316	0·526	582	136	718			
	317	0·665	132	46	178			
	318	0·909	101	71	172	2040	698	2740
26.	305	0·840	39	31	70			
	309	0·944	39	0	39			
	310	0·981	112	156	268			
	314	0·128	159	51	210			
	315	0·264	419	44	463			
	316	0·386	565	97	662			
	317	0·516	84	50	134			
	318	0·826	69	46	114	1486	475	1960
27.	305	0·961	46	77	124			
	314	0·192	161	52	213			
	315	0·115	510	60	570			

TABLE II. (continued).

Date.	Group.	Mean distance from centre, radius=1.	Area of Penumbra.	Area of Umbra.	Area of whole Spot.	Whole for the day.		
						Penumbra.	Umbra.	Whole Spot.
1862.								
June 27.	316	0·148	572	95	666			
	317	0·302	31	13	45			
	318	0·637	100	22	122			
	319	0·872	26	44	70			
	320	0·979	102	164	266	1548	527	2076
28.	314	0·369	161	46	208			
	315	0·247	601	79	680			
	316	0·154	539	103	642			
	317	0·171	9	4	13			
	318	0·476	82	34	116			
	319	0·763	40	13	53			
	320	0·921	164	76	240	1596	355	1952
30.	314	0·735	100	50	150			
	315	0·622	671	108	779			
	316	0·523	532	110	642			
	318	0·156	65	52	116			
	320	0·668	241	74	315	1609	394	2002
July 1.	314	0·895	58	97	155			
	315	0·810	457	116	573			
	316	0·737	503	51	554			
	318	0·300	62	27	89			
	320	0·439	256	66	322	1336	357	1693
5.	318	0·927	45	34	80			
	320	0·462	333	87	420			
	321	0·147	30	34	64			
	322	0·972	106	194	299			
	323	0·431	14	14	28			
	324	0·736	50	19	69	578	382	960
6.	320	0·628	269	44	312			
	321	0·348	41	14	54			
	322	0·900	68	29	97			
	323	0·565	82	31	113			
	324	0·786	111	187	297	571	305	873
8.	320	0·914	210	178	388			
	321	0·841	78	86	164			
	322	0·612	81	27	108			
	323	0·912	73	63	136			
	324	0·939	0	87	87			
	325	0·900	214	39	253			
	326	0·859	165	74	239			
	327	0·760	45	0	45	866	554	1420
11.	322	0·307	152	107	260			
	325	0·443	204	81	284			
	326	0·301	85	49	133			
	327	0·323	32	32	63			
	328	0·922	65	55	120			
	329	0·585	84	26	111			
	331	0·977	76	56	131	698	406	1102
13.	322	0·599	182	27	208			
	325	0·258	123	48	172			
	326	0·178	48	17	65			
	327	0·381	60	0	60			
	329	0·344	27	23	50			
	330	0·680	64	29	93			
	331	0·793	111	35	145	615	179	793
14.	322	0·772	217	34	250			

TABLE II. (continued).

Date.	Group.	Mean distance from centre, radius=1.	Area of Penumbra.	Area of Umbra.	Area of whole Spot.	Whole for the day.		
						Penumbra.	Umbra.	Whole Spot.
1862.								
July 14.	325	0·378	143	55	198			
	326	0·394	28	9	37			
	327	0·579	187	73	260			
	330	0·503	34	15	49			
	331	0·634	49	22	71	658	208	865
15.	322	0·900	136	39	175			
	326	0·585	21	11	32			
	327	0·735	431	87	519			
	325	0·544	132	56	188			
	330	0·330	18	18	36			
	331	0·443	47	28	76	785	239	1026
16.	322	0·980	89	223	313			
	325	0·707	96	42	139			
	326	0·712	121	24	145			
	327	0·871	431	149	580			
	330	0·217	26	13	39			
	331	0·227	65	22	87			
	332	0·308	22	13	36			
	333	0·365	32	0	32			
	334	0·397	19	9	28	901	495	1399
17.	325	0·844	72	24	96			
	326	0·871	132	132	263			
	327	0·962	448	170	618			
	330	0·300	0	18	18			
	331	0·064	26	0	26			
	332	0·250	9	4	13			
	333	0·272	31	4	35			
	334	0·628	77	93	170			
	335	0·362	18	41	59			
18.	325	0·940	75	25	100			
	326	0·959	102	29	131			
	330	0·465	10	10	19			
	331	0·238	48	18	66			
	332	0·377	18	23	41			
	333	0·320	77	41	117			
	334	0·790	270	103	373			
	335	0·543	249	81	330			
	336	0·965	33	132	165			
	337	0·925	0	397	397	882	859	1739
20.	330	0·738	178	51	229			
	331	0·657	40	11	51			
	332	0·649	68	119	186			
	334	0·989	0	163	163			
	335	0·854	107	132	240			
	336	0·747	70	32	102			
	337	0·655	260	79	339			
	338	0·945	209	0	209	932	587	1519
21.	330	0·868	111	77	187			
	331	0·811	0	29	29			
	332	0·791	55	42	97			
	335	0·947	0	79	79			
	336	0·592	258	32	290			
	337	0·496	207	69	276			
	338	0·982	0	134	134	631	462	1092
25.	336	0·331	81	49	131			
	337	0·452	163	43	206			

TABLE II. (continued).

Date.	Group.	Mean distance from centre, radius=1.	Area of Penumbra.	Area of Umbra.	Area of whole Spot.	Whole for the day.		
						Penumbra.	Umbra.	Whole Spot.
1862,								
July 25.	340	0·722	809	172	981			
	341	0·524	40	0	40			
	342	0·823	728	238	966	1821	502	2324
26.	336	0·532	30	30	60			
	337	0·644	67	22	89			
	340	0·575	853	172	1024			
	341	0·360	14	5	18			
	342	0·693	959	142	1101	1923	371	2292
27.	336	0·710	48	36	84			
	337	0·801	71	14	85			
	340	0·386	574	139	713			
	342	0·525	707	110	818			
	343	0·923	284	44	327			
	345	0·969	352	143	495	2036	486	2522
28.	336	0·905	40	181	222			
	337	0·923	55	44	98			
	340	0·201	789	209	998			
	342	0·328	1037	234	1272			
	343	0·774	427	88	514			
	344	0·646	67	50	117			
	345	0·862	392	281	673			
	346	0·972	0	625	625	2807	1712	4519
29.	337	0·976	0	189	189			
	340	0·200	767	218	985			
	342	0·196	998	200	1198			
	343	0·626	422	88	510			
	344	0·775	54	61	115			
	345	0·756	448	253	702			
	346	0·898	243	204	447	2932	1213	4146
30.	340	0·378	819	230	1049			
	342	0·240	900	189	1089			
	343	0·462	328	150	478			
	344	0·893	0	28	28			
	345	0·603	507	182	689			
	346	0·771	292	80	371			
	347	0·949	14	28	41	2860	887	3745
31.	340	0·564	745	226	971			
	342	0·400	913	172	1086			
	343	0·326	230	86	316			
	345	0·445	664	86	749			
	346	0·614	130	54	184			
	347	0·850	16	16	32			
	348	0·985	368	172	540			
	349	0·571	83	31	114	3149	843	3992
Aug. 1.	340	0·721	999	202	1201			
	342	0·575	853	213	1066			
	343	0·319	266	140	406			
	345	0·344	381	127	507			
	346	0·453	234	81	315			
	347	0·714	6	18	24			
	348	0·927	57	102	158			
	349	0·730	25	19	44	2821	902	3721
2.	340	0·865	886	460	1346			
	342	0·760	822	172	994			
	343	0·444	337	104	441			
	345	0·362	342	132	474			

TABLE II. (continued).

Date.	Group.	Mean distance from centre, radius = 1.	Area of Penumbra.	Area of Umbra.	Area of whole spot.	Whole for the day.		
						Penumbra.	Umbra.	Whole Spot.
1862.								
Aug. 2.	346	0·302	202	72	273			
	347	0·539	10	5	15			
	348	0·817	22	30	52			
	350	0·625	38	11	49			
	351	0·970	71	158	229			
	352	0·490	29	0	29	2759	1144	3902
3.	340	0·952	924	689	1613			
	342	0·884	518	245	763			
	343	0·592	390	95	485			
	345	0·481	224	49	273			
	346	0·284	205	71	276			
	347	0·376	5	9	14			
	348	0·668	29	17	46			
	350	0·453	100	19	119			
	351	0·901	97	58	156			
	352	0·364	23	27	50			
	353	0·936	131	95	226			
	354	0·969	0	282	282	2646	1656	4303
4.	340	0·995	0	1264	1264			
	342	0·969	282	370	652			
	343	0·774	305	68	372			
	345	0·639	128	44	172			
	346	0·408	126	60	186			
	348	0·428	28	19	47			
	350	0·307	85	18	103			
	351	0·785	90	35	125			
	353	0·825	320	91	411			
	354	0·892	206	94	300	1570	2063	3632
5.	343	0·895	347	103	451			
	345	0·776	81	61	142			
	346	0·575	203	62	265			
	348	0·382	18	5	23			
	350	0·295	18	31	49			
	351	0·650	40	0	40			
	353	0·679	291	87	379			
	354	0·767	232	106	338	1230	455	1687
6.	346	0·735	181	87	269			
	350	0·431	118	19	137			
	353	0·488	297	117	414			
	354	0·605	246	85	331			
	355	0·797	57	28	85	899	336	1236
7.	346	0·860	174	83	256			
	350	0·385	37	14	51			
	351	0·324	49	23	72			
	353	0·304	269	81	349			
	354	0·431	171	47	218			
	355	0·656	73	17	90	773	265	1036
10.	351	0·627	38	27	65			
	353	0·393	278	88	366			
	354	0·291	245	62	308			
	355	0·216	44	26	71			
	356	0·557	26	10	36	631	213	846
15.	357	0·669	137	34	172			
	358	0·934	0	119	119			
	359	0·662	11	11	23	148	164	314
18.	357	0·086	68	26	94			

TABLE II. (continued).

Date.	Group.	Mean distance from centre, radius = 1.	Area of Penumbra.	Area of Umbra.	Area of whole Spot.	Whole for the day.		
						Penumbra.	Umbra.	Whole Spot.
1862.								
Aug. 18.	358	0·466	121	24	145			
	359	0·335	471	136	606			
	360	0·791	7	14	21	667	200	866
19.	357	0·118	77	26	103			
	358	0·271	111	22	133			
	359	0·391	463	60	523			
	360	0·675	46	34	80			
	361	0·965	477	148	624			
	362	0·824	15	15	30			
	363	0·994	0	163	163	1189	468	1656
20.	357	0·333	90	18	108			
	358	0·134	133	73	206			
	359	0·540	544	127	671			
	360	0·495	84	0	84			
	361	0·882	427	100	527			
	362	0·698	47	18	65			
	363	0·942	62	25	87	1387	361	1748
21.	357	0·533	85	20	105			
	358	0·210	87	35	122			
	359	0·688	592	100	692			
	360	0·368	74	41	115			
	361	0·759	318	117	435			
	362	0·538	30	46	76			
	363	0·845	72	16	88	1258	375	1633
22.	357	0·730	106	37	144			
	358	0·430	33	28	61			
	359	0·843	338	145	482			
	360	0·320	32	9	41			
	361	0·578	302	130	432			
	362	0·356	86	50	137			
	363	0·680	35	12	47	932	411	1344
23.	357	0·851	56	56	112			
	358	0·598	59	16	74			
	359	0·938	149	112	262			
	360	0·424	56	9	66			
	361	0·404	294	125	419			
	362	0·279	80	13	93			
	363	0·513	35	10	45	729	341	1071
24.	357	0·950	152	0	152			
	358	0·762	33	13	46			
	360	0·569	26	0	26			
	361	0·204	296	135	432			
	362	0·333	50	9	59			
	364	0·969	143	106	248	700	263	963
25.	358	0·882	9	9	18			
	360	0·686	12	12	23			
	361	0·130	396	129	525			
	362	0·486	49	10	58			
	364	0·894	150	66	216	616	226	840
26.	358	0·960	31	0	31			
	360	0·801	21	0	21			
	361	0·285	299	147	446			
	362	0·693	3	6	9			
	364	0·767	172	73	245			
	365	0·651	6	11	17	532	237	769
28.	361	0·669	327	132	458			

TABLE II. (continued).

Date.	Group.	Mean distance from centre, radius=1.	Area of Penumbra.	Area of Umbra.	Area of whole Spot.	Whole for the day.		
						Penumbra.	Umbra.	Whole Spot.
1862.								
Aug. 28.	364	0·442	194	62	256			
	365	0·265	132	26	159			
	366	0·785	21	7	28	674	227	901
29.	361	0·825	366	152	518			
	364	0·301	202	67	269			
	365	0·160	112	34	146			
	367	0·969	0	143	143	680	396	1076
30.	361	0·922	338	109	447			
	364	0·302	188	54	242			
	365	0·271	62	22	84			
	367	0·901	87	19	107	675	204	880
Sept. 2.	364	0·777	190	47	237			
	365	0·824	30	0	30			
	367	0·632	44	22	66			
	368	0·673	120	52	172			
	369	0·854	149	33	182			
	370	0·420	23	9	33	556	163	720
3.	364	0·895	194	68	262			
	365	0·952	55	0	55			
	367	0·483	29	10	39			
	368	0·501	79	39	118			
	369	0·729	81	81	162	438	198	636
4.	364	0·963	170	124	294			
	367	0·277	27	13	40			
	368	0·371	78	41	120			
	369	0·610	314	87	400	589	265	854
5.	367	0·173	26	9	35			
	368	0·390	255	79	333			
	369	0·484	380	146	526	661	234	894
6.	367	0·236	31	18	48			
	368	0·423	202	70	273			
	369	0·355	488	128	615	721	216	936
9.	367	0·799	7	21	28			
	369	0·676	460	117	577			
	370	0·731	137	37	175			
	371	0·900	39	9	49	643	184	829
10.	367	0·924	11	11	23			
	369	0·861	314	223	539			
	370	0·578	364	146	510			
	371	0·771	13	0	13	702	380	1085
11.	369	0·931	83	48	130			
	370	0·462	507	126	633	590	174	763
12.	370	0·403	643	144	787	643	144	787
15.	370	0·697	370	163	533			
	372	0·983	294	123	416	664	286	949
16.	370	0·837	407	125	531			
	372	0·914	251	84	335			
	373	0·962	294	62	356			
	374	0·940	361	149	511	1313	420	1733
18.	370	0·980	313	0	313			
	372	0·966	658	197	856			
	373	0·390	157	42	199			
	374	0·394	241	93	333			
	375	0·940	50	50	100	1419	382	1801
19.	372	0·488	253	73	326			
	373	0·560	236	87	324			

TABLE II. (continued).

Date.	Group.	Mean distance from centre, radius=1.	Area of Penumbra.	Area of Umbra.	Area of whole Spot.	Whole for the day.		
						Penumbra.	Umbra.	Whole Spot.
1862.								
Sept. 19.	374	0·530	392	125	517			
	375	0·872	97	35	132			
	376	0·160	26	13	39			
	377	0·977	697	0	697	1701	333	2035
20.	372	0·306	202	49	251			
	373	0·370	224	28	253			
	374	0·357	246	68	315			
	375	0·734	75	19	94			
	376	0·134	26	13	39			
	377	0·904	1270	524	1794	2043	701	2746
25.	372	0·782	162	115	277			
	373	0·825	114	46	160			
	376	0·972	417	0	417			
	377	0·390	2005	750	2755	2698	911	3609
30.	377	0·955	1690	612	2302			
	378	0·377	350	110	460			
	379	0·446	110	52	162	2150	774	2924
Oct. 1.	377	0·972	284	152	436			
	378	0·349	430	127	557			
	379	0·350	150	27	177	864	306	1170
3.	378	0·595	411	128	539			
	379	0·518	65	20	84			
	381	0·753	58	19	78	534	167	701
5.	378	0·872	228	352	580			
	379	0·811	14	14	29			
	382	0·658	51	28	79			
	383	0·774	20	27	47	313	421	735
8.	382	0·326	415	135	550			
	383	0·358	14	0	14			
	384	0·601	112	64	176			
	385	0·939	50	75	125	591	274	865
11.	382	0·773	602	135	738			
	384	0·980	67	67	134			
	385	0·542	25	15	41	694	217	913
16.	385	0·355	9	5	14			
	386	0·565	36	10	46			
	387	0·962	108	139	247	153	154	307
17.	386	0·362	22	14	36			
	387	0·863	111	51	162			
	388	0·925	68	34	102	201	99	300
21.	387	0·258	159	31	190			
	388	0·279	18	9	27			
	389	0·423	61	9	70	238	49	287
23.	387	0·418	381	33	414			
	388	0·187	17	0	17			
	389	0·379	28	5	32			
	390	0·932	296	71	368	722	109	831
24.	387	0·569	338	130	468			
	388	0·383	5	14	19			
	389	0·476	58	19	77			
	390	0·841	281	63	344			
	391	0·888	263	75	338	945	301	1246
26.	387	0·884	109	45	154			
	390	0·541	269	86	356			
	391	0·618	314	59	373			
	392	0·789	7	14	21			

TABLE II. (continued).

Date.	Group.	Mean distance from centre, radius = 1.	Area of Penumbra.	Area of Umbra.	Area of whole Spot.	Whole for the day.		
						Penumbra.	Umbra.	Whole Spot.
1862.								
Oct. 26.	393	0·902	39	29	68	738	233	972
Nov. 11.	394	0·113	115	34	150			
	395	0·204	126	35	161			
	396	0·535	70	15	85			
	397	0·428	28	23	52			
	398	0·446	10	10	19	349	117	467
12.	394	0·310	215	40	255			
	395	0·419	230	56	287			
	396	0·687	35	23	58			
	397	0·251	22	0	22			
	399	0·616	32	11	43	534	130	665
13.	394	0·519	179	65	244			
	395	0·612	260	65	325			
	396	0·826	23	30	53			
	397	0·101	4	4	8			
	399	0·505	152	64	216			
	400	0·825	15	23	38	633	251	884
16.	394	0·941	50	199	249			
	395	0·970	106	53	158			
	396	0·919	55	11	65			
	399	0·300	491	111	602			
	400	0·351	0	14	14			
	401	0·694	195	59	254	897	447	1342
17.	499	0·472	338	58	396			
	400	0·273	9	0	9			
	401	0·516	194	54	248			
	402	0·903	50	60	111	591	172	764
23.	401	0·778	203	54	257			
	402	0·244	733	272	1005			
	403	0·315	18	22	40			
	404	0·444	9	24	33			
	405	0·465	29	24	53	992	396	1388
24.	401	0·901	224	49	272			
	402	0·442	915	171	1085			
	403	0·371	14	0	14			
	404	0·317	68	23	90			
	405	0·318	27	14	41	1248	257	1502
27.	402	0·893	601	103	704			
	404	0·542	5	10	15			
	405	0·489	5	10	15	611	123	734
Dec. 12.	406	0·844	169	56	225	169	56	225
25.	407	0·603	267	117	384			
	408	0·733	50	25	75			
	409	0·766	40	20	60			
	410	0·981	201	134	335			
	411	0·936	143	48	190	701	344	1044
30.	410	0·347	45	14	59			
	411	0·332	190	41	230			
	412	0·420	42	19	61			
	413	0·261	57	13	71			
	414	0·905	272	91	363	606	178	784
31.	410	0·504	128	20	148			
	411	0·499	182	54	236			
	412	0·403	42	23	65			
	413	0·220	210	79	289			
	414	0·776	420	318	738	982	494	1476

TABLE II. (continued).

Date.	Group.	Mean distance from centre, radius=1.	Area of Penumbra.	Area of Umbra.	Area of whole Spot.	Whole for the day.		
						Penumbra.	Umbra.	Whole Spot.
1863.								
Jan. 2.	410	0·700	0	6	6			
	411	0·749	136	84	221			
	412	0·640	11	0	11			
	413	0·530	449	153	602			
	414	0·466	807	309	1116	1403	552	1956
4.	411	0·948	152	55	207			
	413	0·840	446	101	547			
	414	0·256	1107	198	1305	1705	354	2059
7.	414	0·765	1061	324	1386			
	415	0·905	101	50	151	1162	374	1537
8.	414	0·894	958	319	1277			
	415	0·778	135	34	169	1093	353	1446
18.	416	0·279	443	93	536			
	417	0·492	49	25	74			
	418	0·902	301	68	369	793	186	979
20.	416	0·285	531	147	678			
	417	0·551	30	0	30			
	418	0·654	220	73	294			
	419	0·775	0	41	41	781	261	1043
25.	416	0·981	0	335	335			
	417	0·631	27	5	33			
	418	0·588	132	63	195			
	419	0·510	109	20	129			
	420	0·928	114	80	193			
	421	0·983	74	74	147			
	422	0·557	36	0	36	492	577	1068
28.	418	0·949	124	55	179			
	420	0·492	157	39	197			
	421	0·626	33	16	49			
	422	0·422	155	47	202			
	423	0·740	38	19	57	507	176	684
29.	420	0·324	185	63	248			
	421	0·417	61	14	75			
	422	0·632	153	38	192			
	423	0·574	42	26	68	441	141	583
Feb. 8.	424	0·163	121	22	142			
	425	0·392	65	19	83			
	426	0·907	0	20	20	186	61	245
9.	424	0·068	205	47	252			
	425	0·568	31	5	36	236	52	288
May 6.	437	0·503	49	15	64			
	438	0·752	26	6	32			
	439	0·263	18	9	26			
	440	0·561	36	26	62			
	441	0·827	183	46	229	312	102	413
7.	437	0·658	62	40	102			
	438	0·884	54	36	91			
	439	0·437	14	9	24			
	440	0·424	42	28	70			
	441	0·688	213	59	272	385	172	559
8.	437	0·518	30	30	60			
	438	0·960	15	108	124			
	439	0·599	32	21	53			
	440	0·275	75	27	102			
	441	0·516	194	40	234			
	442	0·884	9	18	27	355	244	600

TABLE II. (continued).

Date.	Group.	Mean distance from centre, radius=1.	Area of Penumbra.	Area of Umbra.	Area of whole Spot.	Whole for the day.		
						Penumbra.	Umbra.	Whole Spot.
1863.								
May 13.	441	0·583	648	153	801			
	443	0·585	163	53	216			
	444	0·579	130	26	156	941	232	1173
14.	441	0·698	781	243	1024			
	443	0·408	149	61	210			
	444	0·469	68	39	106	998	343	1340
23.	441	0·768	7	27	33			
	445	0·969	0	71	71			
	446	0·987	136	27	163	143	125	267
24.	445	0·869	170	68	239			
	446	0·901	49	10	58	219	78	297
25.	445	0·739	338	102	440			
	446	0·809	109	36	145			
	447	0·882	172	27	200			
	448	0·914	63	31	94			
	449	0·591	42	11	53	724	207	932
26.	445	0·660	429	153	582			
	446	0·631	219	60	279			
	447	0·801	198	64	262			
	448	0·838	109	47	156			
	449	0·417	23	0	23	978	324	1302
27.	445	0·590	464	148	611			
	446	0·413	224	56	280			
	447	0·702	181	60	241			
	448	0·697	77	24	101			
	449	0·340	59	14	72	1005	302	1305
28.	445	0·411	442	126	568			
	446	0·189	256	39	295			
	447	0·547	132	36	168			
	448	0·505	59	20	79			
	449	0·270	35	9	44	924	230	1154
29.	445	0·216	454	87	542			
	446	0·208	187	35	222			
	447	0·340	77	27	104			
	448	0·337	68	18	86	786	167	954
June 1.	445	0·509	373	88	462			
	446	0·765	66	14	80			
	447	0·221	39	17	57			
	448	0·400	28	14	42			
	450	0·747	19	19	38			
	451	0·933	202	36	238	727	188	917
2.	445	0·683	437	93	530			
	456	0·893	19	9	28			
	447	0·434	71	14	85			
	448	0·593	16	16	32			
	450	0·577	125	10	135			
	451	0·838	227	47	273	895	189	1083
3.	445	0·836	407	109	516			
	447	0·602	59	11	69			
	450	0·382	179	55	235			
	451	0·672	155	52	206	800	227	1026
4.	445	0·939	374	212	586			
	447	0·765	40	7	46			
	450	0·203	279	70	349			
	451	0·492	207	44	251	900	333	1232
6.	450	0·374	193	64	258			

TABLE II. (continued).

Date.	Group.	Mean distance from centre, radius=1.	Area of Penumbra.	Area of Umbra.	Area of whole Spot.	Whole for the day.		
						Penumbra.	Umbra.	Whole Spot.
1863.								
June 6.	451	0·092	98	26	124			
	452	0·323	9	45	54			
	453	0·947	92	52	144	392	187	580
8.	450	0·736	200	25	225			
	451	0·409	107	23	130			
	452	0·349	113	45	158			
	453	0·805	94	22	116	514	115	629
9.	450	0·875	88	35	123			
	451	0·608	96	32	128			
	452	0·513	109	30	139			
	453	0·599	59	21	80	352	118	470
10.	450	0·968	88	35	123			
	451	0·792	83	28	111			
	452	0·713	116	31	147			
	453	0·387	69	23	93	356	117	474
11.	451	0·911	63	52	115			
	452	0·850	72	24	96			
	453	0·198	43	17	60	178	93	271
13.	453	0·398	37	19	56			
	454	0·451	57	72	129	94	91	185
19.	455	0·646	11	11	22	11	11	22
20.	456	0·963	46	278	325	46	278	325
21.	456	0·891	244	85	329	244	85	329
23.	456	0·591	200	58	258			
	457	0·680	47	12	58	247	70	316
25.	456	0·146	129	39	168			
	457	0·299	36	9	45			
	458	0·741	38	13	51	203	61	264
26.	456	0·112	124	39	163			
	457	0·249	18	0	18			
	458	0·864	51	26	77	193	65	258
27.	456	0·343	109	41	149			
	457	0·288	36	9	45	145	50	194
29.	456	0·715	135	25	159			
	457	0·742	185	64	248	320	89	407
30.	456	0·866	128	43	170			
	457	0·835	31	47	78	159	90	248
July 1.	456	0·946	144	39	182			
	459	0·868	0	43	43			
	460	0·880	27	0	27	171	82	252
2.	456	0·985	49	0	49			
	459	0·690	47	24	71			
	460	0·729	19	12	31	115	36	151
3.	459	0·493	10	30	39			
	460	0·567	10	21	31	20	51	70
4.	459	0·219	4	13	17	4	13	17
5.	459	0·095	9	43	51			
	461	0·654	73	40	113			
	462	0·994	408	1345	1753	490	1425	1917
6.	459	0·162	9	52	60			
	461	0·789	173	62	235			
	462	0·895	282	78	360			
	463	0·944	222	118	340	686	310	995
7.	459	0·263	9	4	13			
	461	0·915	157	63	220			
	462	0·771	265	73	338			

TABLE II. (continued).

Date.	Group.	Mean distance from centre, radius=1.	Area of Penumbra.	Area of Umbra.	Area of whole Spot.	Whole for the day.		
						Penumbra.	Umbra.	Whole Spot.
1863.								
July 7.	463	0·844	249	64	313	680	204	884
9.	459	0·658	6	56	62			
	462	0·428	249	61	310			
	463	0·546	142	81	223			
	464	0·638	11	17	28	408	215	623
10.	459	0·855	214	116	331			
	462	0·240	171	61	233			
	463	0·357	182	46	228			
	464	0·431	137	38	175	704	261	967
12.	462	0·303	170	67	237			
	463	0·249	167	48	215			
	464	0·306	121	72	193	458	187	645
14.	462	0·677	245	82	326			
	463	0·608	224	75	299			
	464	0·664	126	34	160			
	465	0·874	202	79	281	797	270	1066
15.	462	0·807	167	58	225			
	463	0·747	127	46	172			
	464	0·799	71	28	99			
	465	0·767	252	60	312	617	192	808
17.	463	0·956	102	73	175			
	464	0·981	22	134	156			
	465	0·510	204	69	273	320	276	604
18.	465	0·411	186	51	238			
	466	0·286	31	9	40	217	60	278
19.	465	0·417	174	56	230			
	466	0·474	39	10	48	213	66	278
24.	465	0·888	197	47	244	197	47	244
25.	465	0·931	143	71	214	143	71	214
26.	467	0·989	0	153	153	0	153	153
28.	467	0·835	188	70	258	188	70	258
29.	467	0·693	160	53	213			
	468	0·913	73	0	73	233	53	286
30.	467	0·509	189	60	248			
	468	0·790	173	41	214	362	101	462
31.	467	0·305	242	31	273			
	468	0·634	120	55	175	362	86	448
Aug. 1.	467	0·143	228	52	279			
	468	0·450	129	29	158	357	81	437
3.	467	0·365	155	36	191			
	468	0·190	43	17	60			
	469	0·916	126	42	168	324	95	419
4.	467	0·535	135	45	181			
	468	0·576	47	16	62			
	469	0·823	201	59	260	383	120	503
5.	467	0·734	181	44	225			
	468	0·761	46	26	73			
	469	0·646	284	50	334			
	470	0·769	46	0	46	557	120	678
7.	467	0·960	185	93	278			
	468	0·904	212	71	282			
	469	0·257	203	31	234			
	470	0·393	28	9	37	628	204	831
8.	468	0·952	41	14	55			
	469	0·058	90	26	115			
	470	0·202	83	17	100	214	57	270

TABLE II. (continued).

Date.	Group.	Mean distance from centre, radius=1.	Area of Penumbra.	Area of Umbra.	Area of whole Spot.	Whole for the day.		
						Penumbra.	Umbra.	Whole Spot.
1863.								
Aug. 10.	469	0·386	60	14	74			
	470	0·248	22	9	31			
	471	0·741	146	19	166			
	472	0·936	107	36	143			
	473	0·954	248	44	291	583	122	705
11.	469	0·583	37	16	53			
	470	0·471	14	5	19			
	471	0·569	130	47	177			
	472	0·845	201	64	265			
	473	0·912	251	84	335	633	216	849
12.	471	0·376	101	32	133			
	472	0·687	163	52	216			
	473	0·803	227	85	311			
	474	0·815	37	22	59	528	191	719
14.	470	0·954	335	0	335			
	471	0·221	17	9	26			
	472	0·476	43	19	63			
	473	0·449	177	48	225	572	76	649
15.	471	0·409	14	9	23			
	472	0·425	75	9	85			
	473	0·241	197	53	250			
	474	0·975	114	57	170	400	128	528
17.	473	0·222	109	31	140			
	474	0·724	110	55	165			
	475	0·593	47	16	63	266	102	368
18.	473	0·476	106	39	145			
	474	0·209	148	100	248			
	475	0·484	29	15	44			
	476*a*	0·451	43	24	67			
	476*b*	0·549	66	20	86	392	198	590
19.	473	0·668	52	29	80			
	474	0·290	214	89	303			
	475	0·413	56	28	84			
	476	0·287	152	45	196	474	191	663
22.	473	0·817	30	22	52			
	475	0·483	39	10	49	69	32	101
24.	475	0·683	23	12	35	23	12	35
29.	476	0·950	55	14	69	55	14	69
Sept. 7.	477	0·927	23	23	45	23	23	45
10.	477	0·495	59	29	88			
	478	0·049	21	9	30			
	479	0·122	56	17	73	136	55	191
11.	477	0·274	62	22	84			
	478	0·240	18	0	18			
	479	0·349	41	14	54	121	36	156
16.	477	0·553	0	21	21	0	21	21
22.	480	0·936	131	71	202	131	71	202
23.	480	0·844	193	48	241	193	48	241
24.	480	0·689	243	71	314	243	71	314
25.	480	0·541	330	102	432	330	102	432
26.	480	0·357	292	132	424	292	132	424
28.	480	0·192	295	74	369			
	481	0·927	11	45	57			
	482	0·551	10	0	10	316	119	436
29.	480	0·363	233	32	264			
	481	0·827	411	99	510			

TABLE II. (continued).

Date.	Group.	Mean distance from centre, radius = 1.	Area of Penumbra.	Area of Umbra.	Area of whole Spot.	Whole for the day.		
						Penumbra.	Umbra.	Whole Spot.
1863.								
Sept. 29.	482	0·749	45	19	65	689	150	839
30.	480	0·534	176	40	216			
	481	0·665	521	160	682			
	482	0·892	113	28	141	810	228	1039
Oct. 1.	480	0·690	219	30	249			
	481	0·512	691	144	835			
	482	0·995	196	98	293	1106	272	1377
5.	481	0·472	478	72	551			
	483	0·835	117	39	156	595	111	707
6.	481	0·648	406	111	517			
	483	0·686	117	41	157	523	152	674
13.	483	0·829	137	46	183			
	484	0·378	41	18	60	178	64	243
14.	483	0·913	73	105	178			
	484	0·482	53	19	73	126	124	251
16.	485	0·931	119	48	166			
	486	0·973	19	19	38	138	67	204
17.	485	0·821	141	59	201	141	59	201
22.	487	0·339	109	27	136			
	488	0·238	26	13	39	135	40	175
23.	487	0·509	60	30	89			
	488	0·549	36	25	61	96	55	150
31.	489	0·817	193	45	238			
	490	0·178	160	35	195			
	491	0·229	131	35	166			
	492	0·961	46	62	108	530	177	707
Nov. 1.	489	0·922	164	65	229			
	490	0·247	176	66	241			
	491	0·148	108	43	151			
	492	0·867	34	43	77	482	217	698
2.	489	0·982	134	89	223			
	490	0·444	123	47	171			
	491	0·301	125	22	148	382	158	542
6.	491	0·974	76	284	360	76	284	360
12.	493	0·943	92	52	144			
	495	0·972	265	114	379	357	166	523
13.	493	0·864	128	34	162			
	494	0·916	63	0	63			
	495	0·905	292	151	443	483	185	668
19.	493	0·466	121	82	203			
	495	0·305	237	58	295			
	496	0·615	92	22	114			
	497	0·869	17	0	17	467	162	629
20.	493	0·634	99	33	132			
	495	0·479	166	102	268			
	496	0·431	76	28	104			
	498	0·462	14	34	48			
	499	0·901	29	0	29	384	197	581
21.	493	0·753	91	19	110			
	495	0·660	215	40	254			
	496	0·214	65	22	87			
	498	0·267	22	13	36	393	94	487
22.	493	0·826	15	30	46			
	495	0·805	210	66	275			
	496	0·089	86	21	107			
	498	0·130	17	30	47	328	147	475

TABLE II. (continued).

Date.	Group.	Mean distance from centre, radius=1.	Area of Penumbra.	Area of Umbra.	Area of whole Spot.	Whole for the day.		
						Penumbra.	Umbra.	Whole Spot.
1863.								
Nov. 23.	493	0·933	59	0	59			
	495	0·921	174	76	251			
	496	0·301	54	13	67			
	498	0·290	9	18	27	296	107	404
28.	500	0·530	141	35	176	141	35	176
Dec. 3.	501	0·880	245	64	309			
	502	0·698	83	30	112			
	503	0·570	104	21	125	432	115	546
4.	501	0·962	155	93	248			
	502	0·829	84	23	107			
	503	0·721	92	24	116	331	140	471
10.	504	0·678	6	12	17			
	505	0·588	279	74	353			
	506	0·712	241	30	271			
	507	0·930	24	48	71	550	164	712
12.	504	0·899	19	0	19			
	505	0·112	385	107	491			
	506	0·501	89	39	128			
	507	0·627	38	16	55			
	508	0·050	9	13	21	540	175	714
14.	505	0·339	313	86	399			
	506	0·234	26	18	44			
	507	0·342	32	9	41			
	508	0·344	18	14	32			
	509	0·429	19	9	28	408	136	544
16.	505	0·600	240	80	320			
	506	0·309	22	0	22	262	80	342
18.	505	0·953	233	193	427			
	510	0·708	585	157	741	818	350	1168
19.	510	0·614	866	276	1141	866	276	1141
22.	510	0·284	945	263	1209			
	511	0·777	61	41	102			
	512	0·646	189	72	261			
	513	0·889	197	47	244	1392	423	1816
23.	510	0·402	783	270	1053			
	511	0·611	49	11	59			
	512	0·545	361	102	462			
	513	0·633	77	16	93			
	514	0·330	41	9	49	1311	408	1719
24.	510	0·613	741	200	941			
	511	0·501	20	10	30			
	512	0·324	478	113	591			
	513	0·501	69	30	98			
	514	0·477	136	29	165			
	515	0·900	68	49	117	1512	431	1942
25.	510	0·775	602	122	724			
	511	0·370	78	14	92			
	512	0·126	292	99	390			
	513	0·401	65	19	84			
	514	0·685	151	23	175			
	515	0·786	159	28	187	1347	305	1652
30.	512	0·916	409	105	514			
	513	0·720	147	31	178			
	515	0·323	171	32	203			
	516	0·231	52	13	65	779	181	960

Remark.—No spots were observed on the sun's disk on the following days:—1863, August 28, 31; September 1, 3, 17, 21; November 9.

TABLE III.—Showing the Heliographical Elements of all Sun-spots observed at the Kew Observatory from February 7th, 1862 to December 31st, 1863.

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1862.									
Feb. 7.	1	37·507	232	0·860	51° 23′·0	9° 13′·2	150° 24′	+16° 33′	P.
	2		232	0·890	54 31·5	4 55·2	146 6	+14 57	Q.
	3		233	0·950	55 51·2	355 33·8	136 45	+15 58	R.
	4		228	0·655	288 52·7	98 33·5	239 45	+15 54	s.
	5		228	0·705	285 56·8	103 8·4	244 19	+16 4	S.
	6		227	0·793	289 50·3	108 47·5	249 59	+22 11	T.
	7		226	0·850	283 13·5	116 50·7	258 2	+19 40	U.
	8		231	0·345	321 42·2	72 15·2	213 26	+11 55	V.
	9		230	0·524	318 53·7	78 36·4	219 47	+21 37	W.
	10		229	0·525	306 3·7	84 30·1	225 41	+17 52	X.
	11	37·625	232	0·843	51 5·5	11 15·5	150 46	+16 9	P.
	12		232	0·872	54 10·9	7 10·8	146 41	+14 38	Q.
	13		233	0·936	55 37·4	358 11·5	137 42	+15 36	R.
	14		228	0·669	287 48·2	100 2·6	239 32	+15 51	s.
	15		228	0·720	285 9·4	104 39·0	244 8	+16 8	S.
	16		227	0·805	288 59·0	110 22·1	249 52	+22 8	T.
	17		226	0·862	282 43·4	118 24·6	257 55	+19 46	U.
	18		230	0·534	315 27·9	80 42·9	220 13	+21 15	W.
	19		229	0·537	303 39·4	86 8·7	225 39	+17 35	X.
8.	20	38·448	232	0·754	45 18·6	22 2·5	149 53	+16 57	P.
	21		232	0·779	49 10·1	18 42·3	146 32	+15 8	Q.
	22		233	0·865	51 37·5	9 25·2	137 15	+16 13	R.
	23		226	0·934	278 59·8	129 54·8	257 45	+19 49	S.
	24		228	0·825	279 4·5	116 20·5	244 11	+15 44	T.
	25		229	0·655	291 51·8	98 19·4	226 9	+17 43	U.
	26		230	0·634	294 24·1	95 58·2	223 48	+18 8	V.
	27	38·490	232	0·744	45 13·0	22 51·9	150 6	+16 39	P.
	28		232	0·772	48 55·1	19 23·9	146 38	+15 4	Q.
	29		233	0·860	51 36·3	10 0·9	137 15	+16 3	R.
	30		226	0·938	278 40·6	130 36·4	257 50	+19 41	S.
	31		228	0·830	278 41·8	117 0·1	244 14	+15 37	T.
	32		229	0·663	291 7·8	99 9·4	226 23	+17 38	U.
	33		230	0·642	293 41·6	96 46·4	223 11	+18 7	V.
10.	34	40·521	232	0·481	18 12·8	50 56·6	149 23	+16 56	P.
	35		232	0·488	24 46·3	48 4·6	146 31	+15 18	Q.
	36		233	0·586	33 14·5	39 49·8	138 16	+16 30	R.
	37		233	0·600	35 20·7	38 14·1	136 40	+16 6	s.
	38		234	0·986	51 42·5	350 29·6	88 56	+20 34	S.
	39		234	0·949	64 12·9	356 2·8	94 29	+ 7 4	T.
	40		235	0·671	253 43·7	109 28·8	207 55	− 5 10	V.
	41		235	0·700	254 32·6	111 43·0	210 10	− 4 25	v.
	42		229	0·911	278 4·9	128 32·5	226 59	+18 40	W.
	43		230	0·829	277 58·2	118 55·5	217 22	+15 32	X.
	44		230	0·786	281 14·5	113 54·4	212 20	+16 29	x.
	45		230	0·775	273 5·7	115 10·1	213 36	+10 11	Y.
	46	40·534	232	0·480	18 8·3	51 0·6	149 15	+16 55	P.
	47		232	0·487	24 41·4	48 10·4	146 24	+15 16	Q.
	48		233	0·585	33 18·8	39 51·7	138 6	+16 26	R.
	49		233	0·599	35 16·4	38 19·5	136 34	+16 6	r.
	50		234	0·988	51 47·6	349 37·2	87 51	+20 39	S.
	51		234	0·951	64 12·4	356 42·7	94 57	+ 7 8	T.
	52		235*a*	0·550	221 16·6	97 20·1	195 34	−23 3	U.
	53		235*a*	0·582	220 59·9	99 28·2	197 42	−24 7	u.
	54		235	0·672	253 42·2	109 34·3	207 48	− 5 10	V.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1862.									
Feb. 10.	55	40·534	235	0·703	254° 28′·4	111° 56′·0	210° 10′	− 4° 27′	v.
	56		229	0·911	277 55·6	128 31·2	226 45	+18 31	W.
	57		230	0·831	277 41·6	119 11·1	217 25	+15 23	X.
	58		230	0·785	280 51·1	113 58·4	212 12	+16 11	x.
	59		230	0·777	272 45·8	115 27·7	215 15	+10 0	Y.
	60	40·562	232	0·477	17 28·1	51 25·7	149 17	+16 56	P.
	61		232	0·482	24 2·9	48 38·6	146 30	+15 15	Q.
	62		233	0·580	33 0·3	40 19·1	138 10	+16 19	R.
	63		233	0·596	35 1·1	38 39·1	136 30	+16 4	r.
	64		234	0·986	51 42·2	350 25·9	88 17	+20 35	S.
	65		234	0·946	64 12·1	357 40·1	95 31	+ 6 58	T.
	66		235*a*	0·554	221 31·4	97 44·4	195 35	−23 3	U.
	67		235*a*	0·588	221 15·3	100 2·1	197 53	−24 10	u.
	68		235	0·679	253 38·1	110 5·5	207 57	− 5 10	V.
	69		235	0·709	254 22·3	112 26·1	210 17	− 4 28	v.
	70		229	0·913	277 52·9	128 54·3	226 45	+18 35	W.
	71		230	0·834	277 28·6	119 40·1	217 31	+15 21	X.
	72		230	0·790	280 40·8	114 29·1	212 20	+16 14	x.
	73		230	0·732	272 39·8	115 56·4	213 47	+10 4	Y.
16.	74	46·552	238	0·747	45 30·1	29 56·4	42 49	+14 22	P.
	75		238	0·680	44 6·4	35 27·7	48 21	+13 0	p.
	76		236	0·234	211 34·5	84 1·7	96 55	−15 31	Q.
	77		232	0·902	272 18·9	134 17·6	147 11	+14 59	R.
	78		232	0·772	277 0·1	119 23·1	132 16	+14 16	r.
	79		234	0·288	306 43·4	82 59·6	95 53	+ 6 42	S.
	80		234	0·263	326 23·4	77 27·9	90 21	+ 7 39	s.
	81		239	0·474	341 34·7	73 35·5	86 29	+21 15	T.
	82	46·572	238	0·738	45 41·8	30 35·5	43 12	+13 54	P.
	83		238	0·668	42 36·8	36 48·6	49 25	+13 27	p.
	84		236	0·240	212 42·4	84 30·9	97 7	−15 30	Q.
	85		236	0·197	201 9·7	81 0·0	93 36	−15 38	q.
	86		232	0·905	271 56·6	134 49·0	147 25	+14 47	R.
	87		232	0·776	276 29·9	119 57·0	132 33	+14 3	r.
	88		234	0·291	305 54·4	83 17·7	95 54	+ 6 41	S.
	89		234	0·269	325 30·1	77 48·7	90 25	+ 7 56	s.
	90		239	0·475	340 56·8	73 55·9	86 32	+21 29	T.
20.	91	50·594	240	0·344	356 1·7	72 50·5	28 24	+ 9 55	P.
	92		242	0·910	60 14·6	13 30·5	329 4	+ 6 23	Q.
	93		234	0·902	262 20·6	140 13·6	95 47	+ 7 19	R.
	94		239	0·857	281 4·1	129 53·6	85 27	+21 27	S.
	95		239*a*	0·288	325 53·4	81 45·4	37 18	+ 9 2	T.
21.	96	51·479	240	0·807	56 56·9	26 26·3	329 26	+ 6 26	P.
	97		242	0·630	78 12·6	39 9·9	342 10	−10 26	Q.
	98		242	0·664	76 22·1	36 37·6	339 38	− 9 17	q.
	99		242	0·620	74 23·6	39 56·9	342 57	− 8 4	q′.
	100		234	0·971	259 38·3	153 8·7	96 9	+ 7 10	R.
	101		234	0·783	258 40·4	123 16·9	66 17	+ 1 25	r.
	102		234	0·750	260 20·9	125 53·7	68 54	+ 2 39	ϱ.
	103		239	0·936	276 31·3	142 37·7	85 38	+21 22	S.
	104	51·500	240	0·811	57 3·5	26 5·4	328 47	+ 6 26	P.
	105		242	0·636	78 5·0	38 45·2	341 27	−10 22	Q.
	106		242	0·670	76 25·5	36 10·3	338 52	− 9 19	q.
	107		242	0·626	74 28·5	39 28·2	342 10	− 8 6	q′.
	108		234	0·969	259 48·3	152 48·2	95 30	+ 7 17	R.
	109		234	0·776	258 42·5	128 26·0	71 8	+ 1 54	r.
	110		234	0·744	260 20·8	125 25·3	68 7	+ 2 33	ϱ.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1862.									
Feb. 21.	111	51·500	239	0·932	276° 39′·6	141° 58′·5	84 40	+21° 19′	S.
28.	112	58·625	243	0·652	27 58·2	54 11·1	255 49	+18 46	P.
	113		247	0·730	31 59·8	47 7·7	248 46	+19 59	p.
	114		248	0·947	56 12·7	16 17·0	217 55	+ 9 2	Q.
	115		244	0·251	56 12·7	71 29·0	273 7	− 3 59	R.
	116		245	0·343	63 26·7	65 24·8	267 3	− 5 6	r.
	117		242	0·855	240 50·8	146 51·8	348 30	−10 11	S.
	118		242	0·815	238 23·9	140 42·8	342 21	−12 19	s.
	119		240	0·683	265 57·8	126 49·9	328 28	+ 6 33	T.
Mar. 1.	120	59·531	244	0·061	0 59·5	85 12·3	273 59	− 4 0	P.
	121		245	0·159	56 36·8	77 13·0	266 0	− 5 15	p.
	122		243	0·537	14 41·1	66 54·8	255 42	+18 41	Q.
	123		247	0·618	21 46·5	59 39·6	248 27	+20 5	q.
	124		248	0·870	53 32·4	28 24·2	217 11	+ 8 53	R.
	125		242	0·947	240 19·0	158 27·0	347 14	− 9 44	S.
	126		242	0·918	237 52·7	153 49·2	342 36	−12 17	s.
	127		240	0·822	261 33·4	139 55·7	328 43	+ 6 40	T.
3.	128	61·646	248	0·555	40 3·0	59 1·5	217 49	+ 8 33	P.
	129		249	0·715	83 47·7	43 9·4	201 56	−16 34	Q.
	130		249	0·738	79 56·0	40 54·3	199 41	−13 56	q.
	131		249	0·456	255 2·8	115 30·8	274 18	− 3 7	R.
	132		244	0·395	251 3·0	111 54·5	270 42	− 5 19	ρ.
	133		245	0·309	252 5·3	106 40·2	265 27	− 5 32	r.
	134		245	0·992	255 23·2	170 21·4	329 8	+ 6 41	S.
	135		243	0·461	321 9·7	96 37·4	255 24	+18 57	T.
	136		247	0·466	337 28·3	88 48·9	247 36	+20 23	t.
	137		247	0·496	334 35·2	90 20·3	249 7	+22 20	τ.
	138	61·659	248	0·554	40 1·0	59 4·8	217 41	+ 8 33	P.
	139		249	0·712	83 48·0	43 23·0	201 59	−16 33	Q.
	140		249	0·737	79 51·6	41 0·0	199 36	−13 53	q.
	141		249	0·458	255 0·0	115 41·0	274 17	− 3 6	R.
	142		244	0·397	251 5·8	112 2·1	270 38	− 5 18	ρ.
	143		245	0·313	251 53·3	106 55·1	265 31	− 5 34	r.
	144		245	0·992	255 24·8	170 1·7	328 38	+ 6 40	S.
	145		243	0·463	320 42·8	96 52·2	255 28	+18 58	T.
	146		247	0·466	337 7·1	88 58·5	247 35	+20 24	t.
	147		247	0·496	334 9·1	90 34·7	249 11	+22 17	τ.
4.	148	62·507	248	0·408	25 46·4	71 41·0	218 15	+ 8 47	P.
	149		249	0·554	85 46·4	56 31·0	203 5	−16 7	Q.
	150		249	0·633	83 1·6	50 28·7	197 3	−15 26	q.
	151		244	0·627	251 39·2	128 9·8	274 34	− 3 2	R.
	152		245	0·577	249 10·1	124 48·5	271 23	− 4 56	ρ.
	153		245	0·489	248 52·4	118 51·3	265 25	− 5 38	r.
	154		243	0·541	301 52·5	108 57·3	255 31	+19 11	S.
	155		247	0·534	313 22·7	103 5·9	249 40	+22 1	s.
	156	62·521	248	0·403	25 34·8	71 58·6	218 22	+ 8 39	P.
	157		249	0·550	86 28·6	56 53·8	203 17	−16 26	Q.
	158		249	0·632	83 23·9	50 36·5	197 0	−15 39	q.
	159		244	0·629	251 13·8	128 23·3	274 46	− 3 17	R.
	160		245	0·579	248 51·3	124 56·7	271 20	− 5 6	ρ.
	161		245	0·491	248 32·8	119 1·7	265 25	− 5 47	r.
	162		243	0·540	301 26·9	109 7·0	255 30	+18 59	S.
	163		247	0·534	312 52·3	103 22·3	249 45	+21 54	s.
	164	62·584	248	0·390	24 19·2	72 37·1	218 6	+ 8 48	P.
	165		249	0·540	86 22·0	57 39·6	203 9	−16 14	Q.
	166		249	0·624	83 25·7	51 18·8	196 48	−15 36	q.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1862.									
Mar. 4.	167	62·584	244	0·637	251° 26′·8	128° 58′·4	274° 27′	− 3° 4′	R.
	168		245	0·588	249 5·7	125 36·6	271 6	− 4 54	ρ.
	169		245	0·503	248 44·7	119 49·8	265 19	− 5 32	r.
	170		243	0·552	300 32·6	110 6·9	255 36	+19 19	S.
	171		247	0·542	311 54·4	104 11·5	249 40	+22 9	s.
5.	172	63·548	250	0·982	50 28·0	14 21·2	146 9	+14 48	P.
	173		249	0·344	95 17·5	72 18·9	204 7	−16 10	Q.
	174		249	0·390	84 40·8	68 13·5	200 2	−13 25	q.
	175		248	0·793	248 53·5	142 58·2	274 46	− 3 6	R.
	176		248	0·679	246 15·8	133 31·1	265 19	− 5 58	r.
	177		243	0·673	287 6·9	123 40·5	255 29	+19 27	S.
	178		243	0·649	295 22·2	118 26·6	250 15	+22 27	s
	179		244	0·286	352 9·0	86 21·7	218 10	+ 8 45	T.
7.	180	65·479	250	0·706	36 59·6	53 22·7	157 48	+14 54	P.
	181		251	0·941	43 31·1	27 47·6	132 13	+17 24	Q.
	182		248	0·239	213 13·6	104 24·7	208 50	−14 39	R.
	183		248	0·223	202 38·0	102 6·5	206 32	−16 2	r.
	184		243	0·967	269 0·6	163 54·4	268 19	+19 16	S.
	185	65·500	250	0·702	36 38·9	53 48·8	157 54	+14 58	P.
	186		251	0·941	43 21·0	26 43·8	130 51	+19 7	Q.
	187		248	0·249	213 34·0	104 58·9	209 6	−14 53	R.
	188		248	0·232	202 36·2	102 31·0	206 38	−16 23	r.
	189		243	0·969	268 54·7	164 19·1	268 26	+19 16	S.
12.	190	70·639	250*a*	0·483	0 16·2	85 34·9	116 48	+18 57	P.
	191		250*b*	0·523	43 4·8	68 52·3	100 5	+ 5 20	Q.
	192		250*b*	0·499	42 31·0	70 30·5	101 44	+ 4 56	q.
	193		251*a*	0·915	233 5·7	164 43·2	195 56	−14 28	R.
	194		251*a*	0·898	229 44·3	162 23·3	193 36	−17 32	r.
	195		251*b*	0·441	303 11·6	111 55·8	143 9	+14 47	S.
19.	196	77·570	253	0·499	39 53·3	77 45·4	10 40	+ 5 48	P.
	197		253	0·862	40 28·3	49 44·2	342 39	+16 44	Q.
	198		252	0·739	70 54·4	56 48·4	349 43	− 9 18	R.
	199		255	0·521	96 29·3	76 17·7	9 13	−22 3	S.
	200		255	0·504	93 45·5	76 48·5	9 44	−20 20	s.
	201		254	0·984	266 44·0	180 46·9	113 42	+20 6	T.
	202		254	0·832	275 19·8	154 22·9	87 18	+20 33	U.
	203	77·584	253	0·494	39 57·4	78 2·2	10 45	+ 5 38	P.
	204		253	0·461	40 25·1	49 53·9	342 37	+16 44	Q.
	205		252	0·734	71 4·6	57 14·3	349 57	− 9 26	R.
	206		255	0·519	96 58·4	76 33·5	9 17	−22 14	S.
	207		254	0·988	266 35·4	182 6·8	114 50	+20 12	T.
	208		254	0·837	275 1·2	155 0·6	87 44	+20 32	U.
24.	209	82·510	252	0·297	236 9·1	126 51·1	349 41	− 8 53	R.
	210	82·520	252*a*	0·983	43 51·8	33 30·2	256 12	+18 24	P.
	211		252*b*	0·938	237 51·4	179 50·2	42 32	− 8 15	Q.
	212		252	0·300	235 54·1	127 1·7	349 44	− 8 59	R.
27.	213	85·528	252	0·831	237 51·9	169 5·0	349 7	− 8 44	P.
31.	214	89·521	256	0·921	45 36·4	52 29·4	175 52	+13 47	P.
	215		255	0·702	75 8·0	71 58·7	195 22	−12 39	Q.
	216		255	0·705	73 36·7	71 40·0	195 3	−11 36	q.
	217		255	0·760	76 1·7	66 58·4	190 21	−13 36	q′.
	218		255	0·483	77 41·0	88 2·4	211 25	−12 25	R.
	219		255	0·465	80 2·2	89 27·6	212 51	−13 17	r.
	220	89·624	256	0·916	45 34·2	53 15·6	175 12	+13 40	P.
	221		255	0·698	75 5·5	72 24·3	194 20	−12 36	Q.
	222		255	0·700	73 37·0	72 8·2	194 4	−11 35	q.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1862.									
Mar. 31.	223	89·624	255	0·758	75° 56′·7	67° 17′·7	189° 14′	−13° 31′	q′.
	224		255	0·493	74 31·4	87 18·2	209 44	−10 58	ϱ.
	225		255	0·480	77 46·5	88 20·3	210 16	−12 25	R.
	226		255	0·459	80 21·0	89 58·5	211 55	+15 52	r.
Apr. 3.	227	92·468	256	0·546	26 2·0	93 11·1	174 46	+13 41	P.
	228		259	0·894	42 10·5	59 48·4	141 23	+15 52	Q.
	229		258	0·440	101 25·0	97 40·2	179 15	−21 30	R.
	230		258	0·406	104 38·0	100 25·3	182 0	−21 23	r.
	231		257	0·109	122 0·5	116 12·4	197 47	−11 36	S.
	232		257	0·173	98 2·8	111 10·6	192 46	−11 51	s.
	233		257	0·230	98 37·3	108 24·5	190 0	−13 45	σ.
	234		255	0·204	250 6·8	131 10·3	212 45	− 4 52	T.
	235		255	0·150	260 6·5	127 47·4	209 22	− 3 48	t.
	236		255	0·092	254 29·2	124 42·8	206 18	− 5 18	τ.
	237	92·514	256	0·540	25 48·6	93 36·4	174 32	+13 34	P.
	238		259	0·888	42 3·5	60 38·1	141 34	+15 46	Q.
	239		258	0·436	102 12·3	98 8·8	179 5	−21 39	R.
	240		258	0·404	105 33·1	100 48·7	181 45	−21 36	r.
	241		257	0·105	124 46·3	116 36·7	197 33	−11 34	S.
	242		257	0·164	99 8·3	111 46·0	192 42	−11 43	s.
	243		257	0·220	100 26·1	109 11·1	190 7	−13 45	σ.
	244		255	0·215	250 54·6	131 51·8	212 48	− 4 36	T.
	245		255	0·158	259 11·5	128 17·1	209 13	− 3 49	t.
	246		255	0·099	253 26·5	125 7·9	206 4	− 5 19	τ.
4.	247	93·490	256	0·403	7 22·0	107 15·0	174 40	+13 23	P.
	248		259	0·777	37 35·7	74 12·9	141 18	+15 32	Q.
	249		258	0·278	136 31·3	115 32·6	182 38	−21 33	R.
	250		258	0·317	123 7·1	110 35·2	177 40	−21 59	r.
	251		257	0·138	165 24·5	122 12·3	189 17	−14 0	S.
	252		257	0·135	192 54·5	125 33·0	192 38	−12 13	s.
	253		257	0·203	217 28·5	131 10·1	198 15	−11 14	σ.
	254		255	0·456	244 11·0	147 41·5	214 47	− 5 16	T.
	255		255	0·400	249 7·3	143 53·8	210 59	− 3 31	t.
	256		255	0·317	245 15·7	139 0·0	206 5	− 5 23	τ.
12.	257	101·458	260	0·944	65 26·7	57 39·0	11 43	− 3 36	P.
	258		263	0·215	227 5·4	140 20·9	94 25	− 9 4	Q.
	259		263	0·201	224 21·7	139 23·8	93 28	− 9 22	q.
	260		259	0·874	264 22·6	185 59·9	140 4	+15 1	R.
	261		262	0·288	344 1·4	125 21·6	79 26	+10 40	S.
	262		262	0·356	5 55·7	117 12·6	71 17	+11 51	s.
13.	263	102·500	261	0·774	76 8·2	78 4·2	17 59	+13 11	P.
	264		261	0·732	73 28·6	82 17	21 34	−10 59	p.
	265		261	0·985	72 11·4	48 46	348 3	− 9 20	Q.
	266		263	0·443	234 58·0	155 33	94 50	− 8 52	R.
	267		263	0·361	230 22·5	150 12	89 29	−10 0	r.
	268		259	0·960	260 58·7	200 37	139 54	+14 50	S.
	269		262	0·344	305 27·0	138 55	78 12	+12 0	T.
	270		262	0·297	327 7·9	131 22	70 39	+11 28	U.
14.	271	103·393	261	0·934	71 36·3	60 51	347 28	− 9 20	Q.
	272		261	0·710	62 50·2	85 9	11 46	− 3 8	q.
	273		261	0·682	48 17·7	89 0	15 37	+ 6 16	q′.
	274		263	0·204	150 6·5	129 31	56 8	−14 46	R.
	275		262	0·615	237 22·8	168 13	94 50	− 8 16	S.
	276		262	0·601	236 33·0	167 13	93 50	− 8 44	S′.
	277		262	0·534	233 39·2	162 25	89 2	−10 3	σ.
	278		262	0·374	296 13·2	143 39	70 16	+11 46	T.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1862.									
Apr. 14.	279	103·406	264	0·971	35° 46′·4	58° 56′	345° 22′	+25° 19′	P.
	280		261	0·929	71 26·1	61 44	348 10	− 9 12	Q.
	281		261	0·705	62 33·6	85 32	11 58	− 3 7	q.
	282		262	0·615	237 7·1	168 13	94 39	− 8 25	S.
	283		262	0·602	236 11·3	167 16	93 42	− 8 56	S′.
15.	284	104·743	264	0·869	30 52·2	78 11	345 40	+24 59	P.
	285		264	0·914	41 28·3	69 6	336 35	+17 51	Q.
	286		265	0·971	77 14·5	54 44	322 13	−14 23	R.
	287		265	0·940	75 58·3	61 2	328 31	−13 16	r.
	288		261	0·777	71 55·5	80 25	347 57	− 9 43	S.
	289		263	0·369	207 57·5	149 49	57 18	−17 36	T.
17.	290	106·458	264	0·621	16 12·6	106 29	349 38	+22 32	P.
	291		261	0·485	73 55·1	104 28	347 37	− 9 27	Q.
	292		265	0·814	77 45·7	78 49	321 58	−14 19	R.
	293		265	0·747	77 8·9	85 4	328 13	−13 22	r.
	294		265	0·747	70 56·4	84 50	327 59	− 8 45	ϱ.
	295		265	0·858	77 30·6	74 7	317 16	−14 21	r′.
	296		263	0·579	223 19·6	167 23	50 32	−16 6	S.
	297		263	0·960	235 21·4	207 27	90 36	− 9 42	T.
	298	106·479	264	0·914	15 14·7	107 5	349 56	+22 24	P.
	299		261	0·476	74 1·4	105 2	347 53	− 9 26	Q.
	300		265	0·809	77 43·9	79 20	322 11	−14 15	R.
	301		265	0·741	77 5·9	85 40	328 31	−13 17	r.
	302		265	0·741	70 49·9	85 25	328 16	− 8 39	ϱ.
	303		265	0·852	77 30·4	74 46	317 37	−14 19	r′.
	304		263	0·584	223 40·4	167 52	50 43	−15 59	S.
	305		263	0·961	235 30·9	207 37	90 28	− 9 32	T.
20.	306	109·488	266	0·585	45 47·2	102 26	302 36	+ 6 26	P.
	307		266	0·521	41 14·9	107 27	307 37	+ 7 16	p.
	308		265	0·287	98 40·7	122 11	322 21	−14 11	Q.
	309		265	0·351	94 12·7	117 57	318 7	−14 52	q.
	310		265	0·274	88 0·3	121 28	321 38	−11 12	q′.
	311		261	0·197	219 59·1	146 42	346 52	− 9 34	R.
	312		261	0·193	225 11·5	146 49	346 59	− 8 32	R′.
21.	313	110·400	266	0·344	27 56·0	121 0	308 14	+ 6 57	P.
	314		266	0·409	37 23·5	115 42	302 56	+ 6 1	p.
	315		267	0·678	76 29·9	94 41	281 55	−11 53	Q.
	316		267	0·645	77 0·9	97 18	284 32	−11 57	q.
	317		265	0·166	141 4·5	134 53	322 7	−14 13	R.
	318		265	0·183	132 36·2	133 8	320 22	−14 40	r.
	319		261	0·386	230 56·3	159 24	346 38	− 9 41	S.
	320		261	0·388	234 32·2	159 46	347 0	− 8 20	S′.
22.	321	111·428	266	0·209	345 28·5	135 49	308 28	+ 6 55	P.
	322		266	0·225	8 7·0	130 56	303 35	+ 5 55	p.
	323		267	0·441	82 43·1	112 51	285 30	−12 20	Q.
	324		267	0·499	81 4·6	108 55	281 34	−12 27	q.
	325		265	0·248	203 52·9	149 17	321 56	−14 1	R.
	326		261	0·599	236 57·7	174 49	347 28	− 8 20	S.
	327		261	0·590	234 45·7	174 7	346 46	− 9 36	S′.
	328		261	0·622	233 20·5	176 22	349 1	−10 40	s.
23.	329	112·400	268	0·930	70 42·9	70 28	229 20	− 7 30	P.
	330		267	0·380	74 7·9	116 56	275 48	− 8 2	Q.
	331		267	0·439	73 34·1	113 10	272 2	− 8 14	q.
	332		265	0·426	221 27·1	162 48	321 40	−13 57	R.
	333		265	0·593	228 38·4	174 45	333 37	−13 11	r.
	334		265	0·589	230 48·3	174 40	333 32	−11 53	ϱ.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1862.									
Apr. 23.	335	112·400	261	0·752	235° 59′·6	187° 50′	346° 42′	− 9° 33′	S.
	336		261	0·760	237 25·6	188 33	347 25	− 8 29	S′.
	337		266	0·273	291 59·6	149 42	308 34	+ 6 51	T.
	338	112·431	268	0·929	70 46·6	70 38	229 3	− 7 34	P.
	339		267	0·376	74 22·4	160 58	319 23	− 8 6	Q.
	340		267	0·436	73 44·8	113 26	271 51	− 8 17	q.
	341		265	0·431	221 46·6	163 8	321 33	−13 54	R.
	342		265	0·599	228 39·6	175 12	333 37	−13 15	r.
	343		265	0·597	230 54·4	175 19	333 44	−11 54	ρ.
	344		261	0·757	235 52·3	188 16	346 41	− 9 39	S.
	345		261	0·764	237 25·1	188 57	347 22	− 8 30	S′.
	346		266	0·277	291 18·6	150 3	308 28	+ 6 56	T.
	347	112·488	268	0·921	70 46·9	71 55	229 32	− 7 36	P.
	348		267	0·362	75 1·1	118 11	275 48	− 8 12	Q.
	349		267	0·422	74 37·3	114 26	272 3	− 8 33	q.
	350		265	0·444	222 31·6	164 7	231 44	−13 51	R.
	351		265	0·609	228 48·1	176 2	333 39	−13 17	r.
	352		265	0·605	231 11·1	175 57	333 34	−11 49	ρ.
	353		261	0·767	236 4·3	189 16	346 33	− 9 32	S.
	354		261	0·776	237 26·6	190 2	347 39	− 8 30	S′.
	355		266	0·285	288 43·6	150 57	308 54	+ 6 44	T.
24.	356	113·442	267	0·149	84 51·4	132 0	276 1	− 7 34	P.
	357		267	0·229	82 14·9	127 23	271 24	− 8 30	p.
	358		261	0·888	236 25·9	202 52	346 53	− 9 26	R.
	359		261	0·895	237 30·6	203 39	347 40	− 8 28	R′.
	360		266	0·458	269 39·4	164 40	308 41	+ 6 52	S.
	361	113·642	267	0·105	92 47·5	134 55	276 10	− 7 28	P.
	362		267	0·188	87 29·8	130 13	271 28	− 8 45	p.
	363		267*a*	0·634	228 49·3	178 57	320 12	−13 35	Q.
	364		267*a*	0·680	228 40·2	182 29	333 44	−14 14	q.
	365		261	0·910	236 7·0	205 53	347 8	− 9 43	R.
	366		261	0·915	237 6·2	206 36	347 51	− 8 48	R′.
	367		261	0·903	232 46·2	205 1	346 16	−12 44	r.
	368		266	0·492	267 11·5	167 25	308 40	+ 6 42	S.
25.	369	114·441	269	0·962	75 16·4	66 40	196 35	−11 20	P.
	370		269*a*	0·740	68 15·1	93 21	223 16	− 5 39	Q.
	371		267	0·099	218 38·9	146 8	276 3	− 7 2	R.
	372		267	0·074	163 59·6	141 44	271 39	− 8 45	r.
	373		265	0·776	232 26·1	191 45	321 40	−12 27	S.
	374		265	0·764	230 52·1	190 31	320 26	−13 33	s.
	375		261	0·976	236 49·8	218 46	348 41	− 8 45	T.
	376		261*a*	0·884	236 12·6	203 16	333 11	− 9 43	U.
	377		266	0·635	261 31·1	178 52	308 47	+ 6 57	V.
	378	114·458	269	0·961	75 28·7	66 47	196 27	−11 32	P.
	379		269*a*	0·735	68 39·6	93 46	223 26	− 5 57	Q.
	380		267	0·103	218 22·2	146 22	276 2	− 7 10	R.
	381		267	0·079	165 29·1	141 54	271 34	− 9 0	r.
	382		265	0·776	232 4·4	191 47	321 27	−12 44	S.
	383		265	0·765	230 39·9	190 41	320 21	−13 43	s.
	384		261	0·972	236 31·9	217 44	347 24	− 9 6	T.
	385		261*a*	0·883	233 55·0	203 12	332 52	− 9 53	U.
	386		266	0·637	258 53·8	178 54	308 34	+ 6 36	V.
26.	387	115·554	269	0·867	75 57·5	82 0	196 7	−11 46	Q.
	388		269	0·809	77 51·0	88 16	202 23	−13 3	q.
	389		267	0·340	237 26·7	161 53	276 0	− 6 44	R.
	390		267	0·276	226 53·7	157 29	271 36	− 9 12	r.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1862.									
Apr. 26.	391	115·646	270	0·992	51° 12′·8	61° 9′	173° 59′	+12° 58′	P.
	392		269	0·855	76 5·0	83 24	196 14	−11 49	Q.
	393		269	0·795	78 9·0	89 46	202 36	−13 10	q.
	394		267	0·363	237 35·0	163 24	276 14	− 6 49	R.
	395		267	0·299	227 21·5	158 55	271 45	− 9 26	r.
27.	396	116·476	270	0·955	50 2·3	72 7	173 10	+12 56	P.
	397		269	0·743	76 57·1	95 16	196 19	−11 43	Q.
	398		269	0·667	79 36·8	101 43	202 46	−12 54	q.
	399		271	0·481	90 46·8	116 21	217 24	−15 54	R.
	400		271	0·441	89 35·9	118 37	219 40	−14 30	r.
	401		267	0·535	239 1·6	175 16	276 19	− 6 55	S.
	402		267	0·468	232 31·6	170 30	271 33	− 9 42	s.
	403	116·538	270	0·950	49 51·7	73 7	173 17	+12 58	P.
	404		269	0·732	77 0·9	96 18	196 28	−11 41	Q.
	405		269	0·655	79 49·2	102 41	202 51	−12 54	q.
	406		271	0·478	92 12·2	116 46	216 56	−16 30	R.
	407		271	0·428	90 30·4	119 38	219 48	−14 34	r.
	408		267	0·549	239 14·9	176 16	276 26	− 6 51	S.
	409		267	0·481	232 42·4	171 26	271 36	− 9 45	s.
	410	116·556	270	0·947	49 58·4	73 41	173 36	+12 47	P.
	411		269	0·730	77 14·2	96 30	196 25	−11 49	Q.
	412		269	0·655	80 16·9	102 45	202 40	−13 12	q.
	413		271	0·476	92 35·7	117 5	217 0	−16 35	R.
	414		271	0·425	90 39·2	119 52	219 47	−14 33	r.
	415		267	0·553	239 11·2	109 35	209 30	− 6 54	S.
	416		267	0·485	232 50·7	171 43	271 38	− 9 43	s.
28.	417	117·425	270	0·877	47 49·4	85 0	172 35	+12 59	P.
	418		269	0·588	78 54·0	108 28	196 3	−11 27	Q.
	419		269	0·498	84 22·2	115 9	202 44	−13 8	q.
	420		271	0·324	105 0·9	128 58	216 33	−16 4	r.
	421		271	0·278	106 51·7	131 36	219 11	−14 46	R.
	422		271	0·083	104 10·5	140 13	227 48	− 7 15	S.
	423		267	0·707	240 11·7	188 53	276 28	− 6 35	T.
	424		267	0·648	235 7·2	184 5	271 40	− 9 47	t.
	425	117·482	270	0·874	47 47·5	85 19	172 6	+12 58	P.
	426		269	0·583	79 42·2	108 51	195 38	−11 29	Q.
	427		269	0·495	84 51·0	115 30	202 17	−13 16	q.
	428		271	0·273	108 12·2	132 8	218 55	−14 51	R.
	429		271	0·127	96 5·2	137 43	224 30	− 7 57	S.
	430		271	0·079	107 19·7	140 36	227 23	− 7 18	s.
	431		267	0·711	240 8·5	189 17	276 4	− 6 38	T.
	432		267	0·651	235 2·3	184 25	271 12	− 9 52	t.
29.	433	118·411	273	0·990	48 52·8	64 58	138 34	+15 38	P.
	434		270	0·754	44 20·8	98 56	172 32	+12 46	Q.
	435		269	0·401	85 2·8	122 18	195 54	−11 36	R.
	436		269	0·310	97 13·5	129 14	202 50	−13 25	r.
	437		271	0·127	212 2·1	151 2	224 38	− 8 9	S.
	438		271	0·196	229 40·3	155 47	229 23	− 7 8	s.
	439		267	0·850	240 18·6	203 9	276 45	− 6 31	T.
	440		267	0·808	235 12·1	198 43	272 19	−10 41	t.
	441		272	0·873	258 51·8	204 7	277 43	+ 9 35	U.
	442		272	0·864	259 56·6	202 55	276 31	+10 19	u.
	443	118·484	273	0·986	48 48·5	66 36	137 10	+15 32	P.
	444		270	0·740	43 56·5	100 15	172 49	+12 42	Q.
	445		269	0·386	85 59·0	123 25	195 59	−11 39	R.
	446		269	0·296	98 28·0	130 16	202 50	−13 18	r.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1862.									
Apr. 29.	447	118·484	271	0·141	216° 1′·5	152° 4′	224° 38′	− 8° 6′	S.
	448		271	0·200	227 19·5	156 0	228 34	− 7 39	s.
	449		267	0·858	240 11·0	204 6	276 40	− 6 37	T.
	450		267	0·817	235 8·2	199 42	272 16	−10 47	t.
	451		272	0·873	259 42·2	204 1	276 35	+10 18	u.
	452		272	0·853	259 46·8	201 43	274 17	+ 9 55	u′.
	453		272	0·869	257 32·0	203 56	276 30	+ 8 22	u″.
30.	454	119·482	273	0·928	47 12·8	80 10	138 35	+15 20	P.
	455		270	0·587	37 3·6	114 7	172 32	+12 46	Q.
	456		269	0·200	107 14·1	137 11	195 36	−11 39	R.
	457		269	0·236	112 47·1	136 27	194 52	−13 58	ϱ.
	458		269	0·164	147 37·9	144 36	203 1	−13 23	r.
	459		269	0·122	160 21·1	146 31	204 56	−11 3	r′.
	460		271	0·450	238 21·6	172 30	230 55	− 6 52	S.
	461		271	0·355	233 57·3	166 26	224 51	− 8 58	s.
	462		267	0·955	239 55·6	218 48	277 13	− 6 36	T.
	463		272	0·945	259 7·6	215 19	273 44	+11 22	U.
	464		272	0·958	257 11·9	217 56	276 21	+ 9 53	V.
	465		272	0·975	255 17·6	222 2	280 27	+ 8 31	W.
	466	119·521	273	0·926	46 54·1	80 39	138 31	+15 33	P.
	467		270	0·585	36 36·9	114 24	172 16	+12 56	Q.
	468		269	0·196	108 10·8	137 31	195 23	−11 38	R.
	469		269	0·231	113 21·3	136 48	194 40	−13 50	ϱ.
	470		269	0·161	149 58·6	145 3	202 55	−13 15	r.
	471		269	0·123	161 25·6	146 42	204 34	−11 3	r^1.
	472		269	0·150	179 45·4	149 33	207 25	−11 54	r^2.
	473		269	0·174	166 20·9	147 52	205 44	−13 51	r^3.
	474		271	0·455	238 37·3	172 53	230 45	− 6 47	S.
	475		267	0·954	239 53·6	218 33	276 25	− 6 39	T.
	476		272	0·946	259 8·1	215 33	273 25	+11 24	U.
	477		272	0·958	257 15·6	217 58	275 50	+ 9 56	V.
	478		272	0·974	255 11·4	221 49	279 41	+ 8 22	W.
May 1.	479	120·598	270	0·409	21 42·3	129 34	172 9	+12 40	P.
	480		273	0·813	44 34·6	95 38	138 13	+14 36	Q.
	481		273	0·858	41 29	91 39	134 14	+18 24	q.
	482		274	0·965	47 40	74 28	117 3	+16 16	R.
	483		274	0·982	46 25	70 0	112 35	+18 8	r.
	484		269	0·198	176 44	151 12	193 47	−14 35	S.
	485		269	0·164	191 20	152 34	195 9	−11 35	T.
	486		269	0·230	189 59	154 40	197 15	−14 51	U.
	487		269	0·221	203 1	156 33	199 8	−12 30	V.
	488		269	0·289	209 17	160 48	203 23	−13 43	v.
	489		271	0·575	238 3	181 56	224 31	− 7 40	W.
	490		271	0·651	239 39	187 31	230 6	− 6 59	X.
	491	120·632	270	0·405	20 57	130 0	172 6	+12 43	P.
	492		273	0·808	44 8	96 17	138 23	+14 48	Q.
	493		273	0·853	41 18	92 21	134 27	+18 23	q.
	494		274	0·958	47 28	75 51	117 57	+16 16	R.
	495		274	0·977	46 15	71 45	113 51	+18 4	r.
	496		269	0·198	179 28	151 44	193 50	−14 20	S.
	497		269	0·172	193 29	153 11	195 17	−11 43	T.
	498		269	0·234	191 43	155 10	197 16	−14 47	U.
	499		269	0·229	205 11	157 15	199 21	−12 26	V.
	500		269	0·295	210 35	161 20	203 26	−13 35	v.
	501		271	0·579	238 4	182 17	224 23	− 7 41	W.
	502		271	0·657	239 38	188 0	230 6	− 7 1	X.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1862.									
May 2.	503	121·434	273	0·698	40° 6′	107° 28′	138° 11′	+14° 43′	P.
	504		273	0·750	36 52	104 14	135 57	+18 31	p.
	505		274	0·935	44 22	81 33	112 16	+18 31	Q.
	506		274	0·895	45 34	87 8	117 51	+16 14	q.
	507		269	0·320	210 52	163 25	194 8	−14 16	R.
	508		269	0·314	220 26	164 33	195 16	−11 27	r.
	509		269	0·362	214 48	166 18	197 1	−14 34	ρ.
	510		269	0·292	223 39	169 28	200 11	−12 8	S.
	511		269	0·443	223 46	172 39	203 22	−13 7	s.
	512		270	0·311	356 55	154 21	185 4	+12 56	T.
	513		270	0·275	348 23	144 22	175 5	+11 37	t.
4.	514	123·482	274	0·382	14 3	135 55	137 36	+13 57	P.
	515		274	0·494	14 52	130 51	132 32	+19 10	p.
	516		274	0·569	20 38	124 46	126 27	+20 38	p′.
	517		274	0·718	35 21	109 21	111 2	+18 51	Q.
	518		269	0·668	228 40	190 41	192 22	−14 25	R.
	519		269	0·693	233 17	193 9	194 50	−11 38	r.
	520		269	0·776	233 34	200 21	202 2	−12 11	S.
	521		269	0·739	231 57	196 51	198 32	−13 2	s.
	522		270	0·436	286 44	169 36	171 17	+12 54	T.
	523		270	0·408	282 54	169 9	170 50	+10 33	t.
5.	524	124·496	275	0·954	53 36	79 38	66 55	+11 11	P.
	525		275	0·984	58 28	71 43	59 0	+ 7 16	p.
	526		269	0·820	231 14	204 19	191 36	−14 32	Q.
	527		269	0·835	234 38	207 12	194 29	−11 52	q.
	528		269	0·903	235 0	215 14	202 31	−11 56	R.
	529		270	0·602	274 48	183 41	170 58	+13 31	S.
	530		270	0·578	274 3	182 1	169 18	+12 55	s.
	531		274	0·303	338 57	150 1	137 18	+13 59	T.
	532		274	0·397	346 48	146 29	133 46	+19 20	U.
	533		274	0·487	3 18	137 8	124 25	+22 12	τ.
	534		274	0·583	25 46	123 2	110 19	+19 9	U.
	535	124·530	275	0·947	53 37	80 56	67 2	+11 1	P.
	536		275	0·983	58 22	72 10	58 16	+ 7 22	p.
	537		269	0·835	231 20	206 58	193 4	−14 37	Q.
	538		269	0·852	234 39	209 4	195 10	−11 59	q.
	539		269	0·912	234 53	216 38	202 44	−12 6	R.
	540		270	0·619	273 33	185 13	171 19	+13 20	S.
	541		274	0·300	334 34	151 28	137 34	+13 49	T.
	542		274	0·395	343 26	147 59	134 5	+19 26	t.
	543		274	0·570	24 47	124 13	110 19	+19 4	U.
8.	544	127·492	275	0·562	41 9	122 51	67 39	+10 46	P.
	545		276	0·654	51 20	114 4	58 52	+10 26	p.
	546		277	0·941	83 50	83 34	28 22	−16 45	Q.
	547		277*a*	0·578	86 56	119 43	64 31	−13 54	R.
	548		273	0·673	272 34	192 22	137 10	+14 12	S.
	549		273	0·682	280 33	190 41	135 29	+19 23	s.
	550		274	0·643	284 35	186 32	131 20	+20 12	σ.
9.	551	128·474	275	0·396	27 33	136 35	67 27	+11 41	P.
	552		276	0·466	36 11	130 45	61 37	+11 4	p.
	553		278	0·476	44 35	128 25	59 17	+ 7 48	Q.
	554		277	0·844	84 58	97 46	28 38	−16 26	R.
	555		274	0·813	267 41	206 18	137 10	+14 22	S.
	556		274	0·820	273 48	205 35	136 27	+19 22	s.
	557		274	0·775	277 28	200 12	131 4	+20 35	σ.
10.	558	129·614	275	0·262	349 53	152 28	67 10	+11 48	P.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1862.									
May 10.	559	129·614	276	0·264	22° 45′	144° 52′	59° 34′	+ 7° 46′	p.
	560		278	0·988	77 13	74 27	349 9	− 9 51	Q^1.
	561		278	0·980	72 53	77 8	351 50	− 5 40	Q^2.
	562		278	0·810	72 51	101 40	16 22	− 5 55	Q^4.
	563		278	0·923	79 18	88 27	3 9	−11 51	Q^5.
	564		277	0·683	88 48	114 15	28 57	−16 26	R.
	565		273	0·930	264 57	222 14	136 56	+14 49	S.
	566	129·640	275	0·265	348 12	152 54	67 14	+12 1	P.
	567		276	0·264	21 15	145 12	59 32	+ 8 1	p.
	568		278	0·985	77 3	75 25	349 45	− 9 42	Q_1.
	569		278	0·979	72 36	77 36	351 56	− 5 24	Q_2.
	570		278	0·952	70 12	83 44	358 4	− 3 18	Q_3.
	571		278	0·805	72 27	102 15	16 35	− 5 36	Q_4.
	572		278	0·916	78 58	89 27	3 47	−11 31	Q_5.
	573		277	0·678	88 33	114 37	28 57	−16 11	R.
	574		273	0·931	265 5	222 20	136 40	+14 56	S.
13.	575	132·511	282	0·524	10 7	141 3	14 39	+23 49	P.
	576		279	0·662	80 29	117 34	351 10	− 9 56	Q.
	577		278	0·726	80 53	112 28	346 4	−10 49	q.
	578		281	0·211	86 25	146 52	20 28	− 6 20	R.
	579		281	0·268	83 20	143 25	17 1	− 6 31	r.
	580		277	0·238	145 51	155 24	29 0	−16 1	S.
	581		275	0·615	272 52	193 21	66 57	+12 30	T.
	582		276	0·525	271 54	187 37	61 13	+ 9 41	t.
	583	132·526	282	0·524	9 30	141 21	14 44	+24 0	P.
	584		279	0·664	80 19	117 26	350 49	− 9 50	Q.
	585		278	0·724	80 48	113 37	347 0	−10 45	q.
	586		278	0·878	86 16	97 52	331 15	−16 53	q^1.
	587		281	0·202	86 39	147 23	20 46	− 6 14	R.
	588		281	0·263	84 29	143 48	17 11	− 6 44	r.
	589		277	0·234	146 19	155 34	28 57	−15 51	S.
	590		275	0·620	272 37	193 45	67 8	+12 29	T.
16.	591	135·683	282	0·896	59 43	98 40	287 16	+ 7 32	P.
	592		279	0·647	90 51	123 2	311 38	−15 30	Q.
	593		279	0·552	91 11	129 47	318 23	−13 48	q.
	594		283	0·333	112 49	147 3	535 39	−15 27	r_1.
	595		281	0·256	103 10	149 5	337 41	−10 25	r_2.
	596		281	0·212	112 12	152 27	341 3	−10 33	r_3.
	597		278	0·118	171 33	162 57	351 33	− 8 54	R.
	598		277	0·462	239 39	188 41	17 17	− 6 29	S.
	599		277	0·649	227 28	200 7	28 43	−15 45	s.
	600		275	0·940	262 5	230 25	59 1	+11 9	T.
	601		275	0·912	260 56	226 16	54 52	+ 9 35	t.
	602		275	0·924	263 37	227 42	56 18	+12 16	r.
	603		275	0·981	262 51	239 2	67 38	+12 46	U.
17.	604	136·420	282	0·807	58 28	109 23	287 32	+ 7 33	P.
	605		279	0·606	82 26	125 34	303 43	− 9 32	Q.
	606		279	0·567	82 56	128 23	306 32	− 9 23	q.
	607		279	0·522	95 57	133 20	311 29	−15 20	q^1.
	608		281	0·159	140 23	159 11	337 20	−10 49	ϱ.
	609		281	0·444	172 8	164 2	342 11	−10 15	r.
	610		278	0·223	217 56	173 15	351 24	− 8 52	R.
	611		277	0·608	241 14	199 20	17 29	− 6 48	S.
	612		277	0·763	230 28	210 36	28 45	−15 53	s.
	613		275	0·986	261 15	241 47	59 56	+11 10	T.
18.	614	137·442	282	0·644	55 26	124 24	288 4	+ 7 32	P.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1862.					° ′	° ′	° ′	° ′	
May 18.	615	137·442	279	0·414	86 42	139 39	303 19	− 8 48	Q.
	616		279	0·344	92 25	144 30	308 10	− 9 33	q.
	617		281	0·233	209 8	173 31	337 11	−10 47	ρ.
	618		281	0·315	223 8	179 46	343 26	−10 8	r.
	619		278	0·425	233 18	187 27	351 7	− 8 50	R.
	620		277	0·781	242 45	214 20	18 0	− 6 50	S.
	621		277	0·891	233 4	225 25	29 5	−15 51	s.
19.	622	138·434	282	0·462	48 44	138 31	288 6	+ 8 16	P.
	623		279	0·232	104 19	152 58	302 33	− 9 25	Q.
	624		279	0·167	113 35	157 8	306 43	− 8 32	q.
	625		281	0·421	255 57	187 8	336 43	−11 43	ρ.
	626		281	0·505	233 3	193 25	343 0	−10 14	r.
	627		278	0·607	238 20	200 58	350 33	− 8 42	R.
22.	628	141·427	285	0·933	85 22	98 31	205 39	−13 55	P.
	629		285	0·932	87 15	98 49	205 57	−15 39	p.
	630		285	0·988	88 16	86 11	193 19	−17 15	π.
	631		279	0·745	236 6	214 16	321 24	−12 11	Q.
	632		279	0·608	237 54	203 40	310 48	− 9 14	r.
	633		279	0·561	236 47	200 18	307 26	− 9 18	ρ.
	634		279	0·527	236 56	197 59	305 7	− 8 46	R.
	635		278	0·974	242 12	243 46	350 54	− 9 0	S.
	636		281	0·938	241 48	236 29	343 37	− 9 15	T.
	637		281	0·912	239 4	232 21	339 29	−11 36	t.
	638		282	0·294	285 28	181 6	288 14	+ 7 55	U.
	639	141·445	285	0·933	85 25	98 34	205 27	−13 57	P.
	640		285	0·932	87 16	98 52	205 45	−15 40	p.
	641		285	0·990	88 14	85 27	192 20	−17 13	π.
	642		279	0·747	236 31	214 27	321 20	−11 54	Q.
	643		279	0·611	237 53	203 55	310 48	− 9 18	r.
	644		279	0·564	236 51	200 30	307 23	− 9 18	ρ.
	645		279	0·530	236 53	198 12	305 5	− 8 50	R.
	646		278	0·973	242 13	243 36	350 29	− 9 0	S.
	647		281	0·939	242 2	236 39	343 32	− 9 2	T.
	648		281	0·914	239 17	232 44	339 37	−11 26	t.
	649		282	0·297	286 22	181 7	288 0	+ 8 14	U.
24.	650	143·492	287	0·957	48 52	97 59	175 50	+21 20	P.
	651		287	0·941	49 6	99 39	177 30	+22 8	p.
	652		286	0·829	91 44	116 20	194 11	−17 14	Q.
	653		286	0·779	90 52	119 17	197 8	−15 39	q.
	654		285	0·670	89 54	128 19	206 10	−13 4	R.
	655		285	0·661	93 15	129 35	207 26	−15 3	r.
	656		285	0·576	91 54	135 27	213 18	−12 35	ρ.
	657		282	0·677	266 12	210 18	288 9	+ 8 39	S.
26.	658	145·694	287	0·704	40 6	131 37	178 13	+21 12	P.
	659		287	0·778	41 3	125 5	171 41	+23 5	p.
	660		288	0·892	60 49	108 53	155 29	+ 9 51	Q.
	661		289	0·542	52 46	140 4	186 40	+ 9 31	R.
	662		289	0·497	44 11	144 34	191 10	+12 33	r.
	663		289	0·533	36 37	144 19	190 55	+17 6	ρ.
	664		285	0·497	106 27	145 39	192 15	−17 4	S.
	665		285	0·335	122 24	158 8	204 44	−15 54	t.
	666		285	0·262	124 54	161 39	208 15	−13 3	T.
	667		285	0·215	140 5	166 16	212 52	−12 33	U.
	668		285	0·190	152 6	169 4	215 40	−11 53	V.
29.	669	148·456	287	0·339	351 41	170 16	177 42	+21 44	P.
	670		287	0·436	4 23	163 59	171 25	+23 8	p.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1862.									
May 29.	671	148·456	288	0·389	56° 27′	151° 52′	159° 18′	+ 5° 45′	Q.
	672		288	0·490	52 8	146 16	153 42	+ 9 30	q.
	673		289	0·936	79 16	104 38	112 4	− 5 42	R.
	674		286	0·326	193 52	183 35	191 1	−17 2	S.
	675		285	0·419	228 40	196 23	203 49	−10 49	T.
	676		285	0·519	230 13	202 48	210 14	−12 29	t.
June 1.	677	151·485	293	0·960	65 59	103 14	67 42	+ 8 7	P.
	678		293	0·954	62 18	104 48	69 16	+11 33	p.
	679		292	0·755	61 0	128 34	93 2	+ 9 54	Q.
	680		292	0·784	60 46	126 2	90 30	+10 29	q.
	681		289	0·488	86 25	148 0	112 28	− 6 6	R.
	682		291	0·572	82 53	142 6	106 34	− 5 5	r.
	683		286	0·943	242 26	246 35	211 3	−11 35	S.
	684		288	0·340	270 5	195 39	160 7	+ 4 46	T.
	685		290	0·282	292 28	189 32	154 0	+ 9 30	t.
	686		287	0·445	283 30	199 55	164 23	+11 58	U.
	687		287	0·411	288 21	197 0	161 28	+12 44	u.
	688		287	0·654	289 2	211 49	176 17	+21 17	V.
2.	689	152·382	293	0·882	65 3	116 9	67 54	+ 8 32	P.
	690		293	0·872	61 33	117 42	69 27	+11 27	p.
	691		293	0·940	63 10	108 7	59 52	+10 54	π.
	692		292	0·608	57 36	141 28	93 13	+10 7	Q.
	693		292	0·645	57 42	138 47	90 32	+10 43	q.
	694		289	0·303	94 11	160 46	112 31	− 6 2	R.
	695		288	0·525	264 33	208 35	160 20	+ 4 44	S.
	696		288	0·448	277 10	202 9	153 54	+ 9 25	s.
	697		290	0·617	275 49	213 25	165 10	+12 33	T.
	698		290	0·563	278 59	209 9	160 54	+12 57	t.
	699		287	0·775	283 4	224 21	176 6	+21 9	U.
3.	700	153·734	293	0·352	43 59	161 1	93 35	+10 23	P.
	701		293	0·398	46 25	158 1	90 35	+10 57	p.
	702		292	0 699	62 50	135 15	67 49	+ 8 38	Q.
	703		292	0·737	62 31	132 13	64 47	+ 9 21	q.
	704		292	0·786	60 41	128 6	60 40	+11 25	q^1.
	705		289	0·104	177 10	179 55	112 29	− 6 0	R.
	706		294	0·057	283 37	181 34	114 8	+ 1 22	r.
	707		294	0·058	12 51	177 10	109 44	+ 2 48	ρ.
	708		288	0·771	262 0	228 44	161 18	+ 4 55	S.
	709		290	0·782	272 44	228 36	161 10	+13 17	s.
	710		290	0·801	270 1	230 46	163 20	+11 29	σ.
	711		287	0·926	278 58	244 27	177 1	+21 35	T.
4.	712	154·438	293	0·577	59 54	145 19	67 54	+ 8 57	P.
	713		293	0·608	57 11	143 35	66 10	+11 2	p.
	714		293	0·662	59 59	139 13	61 48	+10 14	π.
	715		292	0·235	23 36	170 59	93 34	+10 33	Q.
	716		292	0·279	30 37	167 51	90 26	+11 15	q.
	717		289	0·204	227 4	189 42	112 17	− 5 41	R.
	718		294	0·230	263 2	192 32	115 7	+ 1 36	r.
	719		294	0·144	276 10	187 5	109 40	+ 2 47	ρ.
	720		288	0·863	261 27	238 42	161 17	+ 4 53	T.
	721		290	0·891	268 36	241 28	164 3	+11 23	U.
	722		287	0·971	277 56	254 6	176 41	+21 29	V.
	723	154·666	293	0·536	58 59	148 26	67 47	+ 8 51	P.
	724		293	0·572	56 23	146 26	65 47	+10 53	p.
	725		293	0·568	61 18	146 1	65 22	+ 8 6	p^1.
	726		293	0·625	59 15	142 14	61 35	+10 11	π.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1862.									
June 4.	727	154·666	292	0·206	13° 51′	173° 57′	93° 18′	+10° 24′	Q.
	728		292	0·245	23 30	170 52	90 13	+11 4	q.
	729		289	0·250	232 5	192 49	112 10	− 5 48	R.
	730		294	0·285	260 47	196 1	115 22	+ 1 22	r.
	731		294	0·190	269 19	190 12	109 33	+ 2 29	ρ.
	732		288	0·886	261 26	241 38	160 59	+ 4 56	T.
	733		290	0·912	268 24	244 34	163 55	+11 25	U.
	734		287	0·975	277 55	255 22	174 43	+21 29	V.
7.	735	157·417	296	0·943	87 7	112 15	352 35	− 9 31	P.
	736		295	0·641	63 7	143 17	23 37	+ 8 59	Q.
	737		295	0·489	114 28	158 24	38 44	−17 0	R.
	738		294*a*	0·666	180 4	184 23	64 43	− 8 59	S.
	739		294*a*	0·152	173 31	183 13	63 33	− 8 23	s.
	740		289	0·770	249 5	232 4	112 24	− 5 49	T.
	741		294	0·823	257 59	237 25	117 45	+ 1 2	t.
	742		294	0·748	259 53	230 24	110 44	+ 2 24	τ.
	743		292	0·537	277 4	212 59	93 19	+10 52	U.
	744		292	0·491	281 26	209 14	89 34	+11 58	u.
	745		293	0·175	318 22	187 2	67 22	+ 9 5	V.
	746		293	0·195	333 45	184 47	65 7	+11 10	W.
	747		293	0·148	331 40	184 27	64 47	+ 8 28	X.
	748	157·447	296	0·941	87 7	112 35	352 29	− 9 29	P
	749		295	0·508	72 20	151 53	31 47	+ 2 34	Q′.
	750		295	0·480	114 56	159 3	38 57	−16 52	R.
	751		295	0·428	121 33	163 43	43 37	−17 10	r.
	752		294*a*	0·166	182 27	184 48	64 42	− 8 54	S.
	753		294*a*	0·150	175 54	183 35	63 29	− 8 11	s.
	754		289	0·772	249 4	232 14	112 8	− 5 51	T.
	755		294	0·825	258 6	237 36	117 30	+ 1 8	t.
	756		294	0·751	259 49	230 39	110 33	+ 2 21	τ.
	757		292	0·541	277 8	213 13	93 7	+10 58	U.
	758		292	0·497	281 32	209 39	89 33	+12 10	u.
	759		293	0·178	316 1	187 32	67 26	+ 9 3	V.
	760		293	0·195	332 17	185 6	65 0	+11 7	W.
	761		293	0·151	329 54	184 47	64 41	+ 8 32	X.
8.	762	158·447	296	0·489	58 7	155 22	21 5	+ 9 35	P.
	763		296	0·440	58 37	158 22	24 5	+ 8 27	p.
	764		296	0·842	88 54	126 37	352 20	− 9 29	Q.
	765		295	0·342	137 16	172 55	38 38	−16 44	R.
	766		295	0·310	152 47	178 32	44 15	−16 58	r.
	767		295	0·321	230 15	199 52	65 35	− 7 59	S.
	768		289	0·902	250 33	247 10	112 53	− 5 55	T.
	769		294	0·939	258 10	252 46	118 29	+ 0 55	t.
	770		294	0·880	259 58	244 38	110 21	+ 2 31	τ.
	771		292	0·716	272 19	227 48	93 31	+10 56	U.
	772		292	0·675	274 57	224 8	89 51	+12 4	u.
	773		293	0·353	283 2	201 53	67 36	+ 9 9	V.
	774		293	0·336	292 6	199 26	65 9	+11 23	W.
	775		293	0·306	285 25	198 56	64 39	+ 8 38	X.
	776	158·466	296	0·482	58 3	155 49	21 16	+ 9 30	P.
	777		296	0·436	58 17	158 41	24 8	+ 8 31	p.
	778		296	0·837	89 24	127 16	352 43	− 9 49	Q
	779		295	0·341	138 13	173 16	38 43	−16 50	R.
	780		295	0·311	153 49	178 51	44 18	−17 8	r.
	781		295	0·326	230 26	200 10	65 37	− 8 3	S.
	782		295	0·359	228 37	201 44	67 11	− 9 30	s.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1862.									
June 8.	783	158·466	295	0·308	222° 59′	198° 3′	63° 30′	− 9° 34′	σ.
	784		289	0·902	250 24	247 12	112 39	− 6 4	T.
	785		294	0·938	258 16	252 38	118 5	+ 1 1	t.
	786		294	0·884	259 51	245 4	110 31	+ 2 25	τ.
	787		292	0·901	239 23	243 11	108 38	− 8 52	θ.
	788		292	0·719	272 17	228 0	93 27	+10 56	U.
	789		292	0·677	274 51	224 21	89 48	+12 1	u.
	790		293	0·356	282 40	202 9	67 36	+ 9 7	V.
	791		293	0·339	291 40	199 43	65 10	+11 22	W.
	792		293	0·309	284 44	199 15	64 42	+ 8 32	X.
9.	793	159·594	296	0·220	35 2	174 54	24 21	+ 9 5	P.
	794		296	0·272	42 49	171 18	20 45	+ 9 27	p.
	795		296	0·678	93 0	142 48	352 15	− 9 49	Q.
	796		295	0·308	182 32	188 57	38 24	−16 43	R.
	797		295	0·358	198 59	195 24	44 51	−17 12	r.
	798		297	0·518	237 35	213 41	63 8	− 9 48	S.
	799		297	0·604	240 19	219 53	69 20	− 9 58	s.
	800		289	0·982	251 22	263 3	112 30	− 6 12	T.
	801		292	0·871	269 38	244 9	93 36	+10 32	U.
	802		292	0·845	271 47	241 1	90 28	+12 3	u.
	803		292	0·863	275 45	242 31	91 58	+15 41	u′.
	804		293	0·575	272 58	218 17	67 44	+ 9 4	V.
	805		293	0·547	277 54	215 45	65 12	+11 16	W.
	806		293	0·526	272 56	215 2	64 29	+ 8 20	X.
	807		293	0·675	280 15	224 23	73 50	+15 18	Y.
	808		293	0·656	282 9	222 34	72 1	+16 4	Z.
10.	809	160·431	299	0·837	44 11	133 18	330 52	+28 11	P.
	810		299*a*	0·539	97 7	154 3	351 37	− 9 30	Q.
	811		295	0·320	173 16	186 47	24 21	−17 51	r.
	812		295	0·293	196 1	193 10	30 44	−14 19	R.
	813		295	0·389	208 49	200 19	37 53	−16 27	S.
	814		295	0·471	217 52	207 3	44 37	−17 3	T.
	815		297	0·737	244 20	231 24	68 58	− 9 39	U.
	816		297	0·658	242 31	224 53	62 27	− 9 41	u.
	817		293	0·711	270 12	229 37	67 11	+ 8 58	V.
	818		293	0·685	274 11	227 6	64 40	+11 22	W.
	819		293	0·667	269 59	227 12	64 46	+ 8 20	X.
	820		293	0·569	272 27	218 48	56 22	+ 8 35	Y.
	821		293	0·529	273 57	215 57	53 31	+ 8 49	υ.
	822		292	0·942	269 16	254 59	92 33	+10 41	Z.
11.	823	161·410	301	0·970	100 43	111 44	295 25	−21 14	P.
	824		299	0·349	108 26	168 12	351 53	− 9 15	Q.
	825		298	0·438	220 8	206 44	30 25	−15 2	r.
	826		298	0·472	224 15	209 40	33 21	−14 40	R.
	827		295	0·546	225 13	214 18	37 59	−16 43	s.
	828		295	0·642	229 19	221 50	45 31	−17 35	S.
	829		302	0·430	264 22	211 13	34 54	+ 3 10	T.
	830		302	0·387	264 37	208 33	32 14	+ 3 2	t.
	831		297	0·884	247 14	247 19	71 0	− 9 36	U.
	832		297	0·816	246 11	239 41	63 22	− 9 35	u.
	833		293	0·857	268 39	244 25	68 6	+ 9 1	V.
	834		293	0·835	272 6	240 51	64 32	+ 8 18	W.
	835		293	0·821	268 8	240 39	64 20	+ 8 17	X.
	836		293	0·766	270 35	235 17	58 58	+ 9 40	Y.
	837		293	0·697	275 20	228 50	52 31	+12 8	Z.
13.	838	163·482	303	0·910	90 37	123 21	277 39	− 9 39	P.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1862.									
June 13.	839	163·482	303	0·875	89° 57′	127° 40′	281° 58′	− 8° 41′	p.
	840		301	0·862	108 27	132 32	286 50	−24 4	Q.
	841		301	0·800	108 24	139 5	293 23	−22 4	q.
	842		301	0·773	106 48	141 9	295 27	−20 5	q′.
	843		300	0·240	214 51	197 52	352 10	− 8 40	R.
	844		302	0·812	240 19	240 17	34 35	−14 46	S.
	845		302	0·911	239 31	251 41	45 59	−17 35	s.
	846		295	0·991	267 14	270 7	64 25	+ 7 53	T.
	847		298	0·406	276 14	210 55	5 13	+ 7 38	U.
	848		298	0·469	269 51	215 26	9 44	+ 5 44	u.
14.	849	164·454	304	0·980	89 25	110 52	251 23	− 9 9	P.
	850		303	0·798	93 0	137 4	277 35	− 9 45	Q.
	851		303	0·761	93 16	140 28	280 59	− 9 24	q.
	852		301	0·764	113 45	144 56	285 27	−24 20	R.
	853		301	0·668	115 10	153 6	293 37	−21 44	r.
	854		301	0·629	113 55	155 25	295 56	−19 38	ϱ.
	855		302	0·424	236 41	212 0	352 31	− 8 32	S.
	856		302	0·999	241 52	265 50	46 21	−17 19	T.
	857		298	0·601	272 45	255 3	5 34	+ 8 36	U.
	858		298	0·668	267 42	230 23	10 54	+ 6 4	u.
15.	859	165·490	304	0·888	90 37	127 59	253 48	− 8 34	P.
	860		305	0·952	90 25	118 26	244 15	− 9 14	p.
	861		303	0·632	98 4	152 21	278 10	−10 6	Q.
	862		303	0·585	98 43	155 46	281 35	− 9 35	q.
	863		301	0·631	123 38	159 41	285 30	−24 30	R.
	864		301	0·528	128 7	167 31	293 20	−21 46	r.
	865		301	0·491	128 18	169 29	295 18	−20 8	ϱ.
	866		300	0·623	244 5	229 59	355 48	− 8 59	S.
	867		302	0·831	266 38	245 49	11 38	+ 5 57	T.
	868		302	0·776	271 18	240 12	6 1	+ 9 19	t.
16.	869	166·507	306	0·278	8 33	185 45	297 8	+16 38	P.
	870		305	0·748	94 2	143 34	254 57	− 8 57	Q.
	871		304	0·858	92 7	132 39	244 2	− 9 1	q.
	872		303	0·448	107 7	214 45	326 8	−10 11	R.
	873		303	0·398	109 48	170 14	281 37	− 9 50	r.
	874		303	0·399	101 33	168 50	280 13	− 6 52	ϱ.
	875		301	0·513	138 6	173 15	284 38	−24 11	S.
	876		301	0·425	148 59	181 6	292 29	−21 47	T.
	877		301	0·382	152 43	183 37	295 0	−19 52	U.
	878		301	0·945	266 51	261 28	12 51	+ 6 14	V.
17.	879	167·417	306	0·736	94 47	145 30	243 59	− 8 57	p.
	880		305	0·588	98 52	157 16	255 45	− 9 4	P.
	881		304	0·321	124 14	177 54	276 23	−11 12	q.
	882		303	0·282	127 31	180 20	278 49	−10 17	Q.
	883		303	0·248	135 5	183 12	281 41	−10 3	q′.
	884		301	0·444	158 44	185 43	284 12	−24 6	R.
	885		301	0·403	170 1	191 12	289 41	−22 10	S.
	886		301	0·379	183 46	196 44	295 13	−20 9	T.
18.	887	168·424	307*a*	0·789	92 45	141 30	225 42	− 7 47	p.
	888		307*a*	0·817	95 23	139 6	223 18	−10 17	π.
	889		307	0·546	87 44	159 51	244 3	− 2 1	P.
	890		305	0·566	100 4	159 51	244 3	− 8 58	q.
	891		304	0·464	105 26	167 18	251 30	− 9 20	q′.
	892		304	0·392	108 12	171 59	256 11	− 8 35	Q.
	893		303	0·221	168 24	191 55	276 7	−11 4	ϱ.
	894		303	0·208	179 58	194 24	278 36	−10 14	r.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1862.									
June 18.	895	168·424	303	0·218	193° 29′	197° 21′	281° 33′	−10° 2′	R.
	896		301	0·486	184 1	199 20	283 32	−26 37	S.
	897		301	0·451	184 4	198 45	282 57	−24 25	S′.
	898		301	0·459	194 8	205 25	289 37	−22 34	T.
	899		301	0·476	209 50	210 53	295 5	−20 21	U.
23.	900	173·470	317	0·927	70 27	129 52	142 29	+13 11	p.
	901		316	0·871	74 47	137 3	149 40	+ 8 55	P.
	902		315	0·795	72 57	145 10	157 47	+ 9 55	P_1.
	903		314	0·705	77 12	152 48	165 25	+ 6 11	P_2.
	904		314	0·612	71 54	160 17	172 54	+ 8 58	π.
	905		313	0·664	97 10	156 56	169 33	− 7 8	Q.
	906		313	0·720	102 44	153 26	166 3	−11 55	Q_1.
	907		313	0·761	98 18	149 15	161 52	− 9 30	q.
	908		304	0·341	232 56	214 30	227 7	− 7 57	R.
	909		305	0·268	218 56	208 28	221 5	− 8 44	r
	910		301	0·967	234 45	269 15	281 52	−27 19	S.
	911		303	0·773	253 5	247 5	259 42	− 6 50	T.
	912		303	0·645	247 17	236 0	248 37	− 8 50	t.
	913		311	0·659	260 48	238 23	251 0	− 0 19	U.
	914		311	0·525	257 45	228 44	241 21	− 1 18	u.
	915		309	0·388	304 44	215 8	227 45	+16 44	V.
25.	916	175·718	317	0·692	65 30	157 8	137 52	+15 1	p.
	917		317	0·640	65 28	161 13	141 57	+14 7	π.
	918		316	0·526	70 43	168 30	149 14	+ 9 26	P.
	919		315	0·404	66 56	176 42	157 26	+ 9 21	P_1.
	920		314	0·275	67 57	184 14	164 58	+ 6 55	P_2.
	921		314	0·173	42 10	192 10	172 54	+ 9 2	P_3.
	922		313	0·903	93 24	135 42	116 26	− 6 39	Q.
	923		318	0·243	124 22	188 42	169 26	− 6 29	R.
	924		318	0·353	127 49	184 21	165 5	−11 30	r.
	925		305	0·741	251 50	246 9	226 53	− 7 54	S.
	926		311	0·906	251 19	263 13	243 57	−11 8	t.
	927		311	0·986	257 5	279 18	260 2	− 7 12	T.
	928		310	0·938	262 55	269 0	249 44	− 0 56	U.
	929		310	0·878	262 20	260 39	241 28	− 1 0	u.
26.	930	176·422	317	0·576	61 49	167 6	137 51	+15 15	p.
	931		317	0·516	60 58	171 15	142 0	+14 22	π.
	932		316	0·386	66 25	178 24	149 19	+ 9 26	P.
	933		315	0·264	58 26	186 27	157 12	+ 9 14	P_1.
	934		314	0·131	47 34	194 12	164 57	+ 7 5	P_2.
	935		313	0·118	336 25	202 24	173 9	+ 8 54	P_3.
	936		318	0·826	94 43	145 24	116 9	− 6 26	Q.
	937		309	0·159	166 47	198 53	169 38	− 6 29	R.
	938		309	0·266	152 0	194 7	164 52	−11 34	r.
	939		305	0·840	253 47	256 11	227 1	− 8 6	S.
	940		310	0·981	263 32	278 35	249 20	− 1 4	T.
	941		310	0·944	263 10	270 33	241 18	− 1 1	t.
27.	942	177·650	320	0·979	75 57	123 2	76 22	+10 5	P.
	943		319	0·872	73 10	140 59	94 19	+12 13	p.
	944		318	0·637	98 50	162 56	116 16	− 6 13	Q.
	945		317	0·375	54 1	182 17	135 37	+13 49	r.
	946		317	0·302	40 59	188 36	141 56	+14 48	ρ.
	947		316	0·148	33 56	196 5	149 25	+ 9 17	R.
	948		315	0·115	337 48	203 25	156 45	+ 8 55	R_1.
	949		314	0·192	290 13	211 29	164 49	+ 7 10	R_2.
	950		314	0·334	286 4	219 48	173 8	+ 9 10	R_3.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude. from Node.	Helio-grapical Longitude.	Helio-graphical Latitude.	Spot.
1862.									
June 27.	951	177·650	305	0·299	209° 46′	211° 11′	164° 31′	−11° 40′	S.
	952		310	0·961	255 58	274 21	227 41	− 8 35	T.
28.	953	178·537	320	0·921	76 5	135 13	75 58	+10 18	P.
	954		319	0·763	71 59	153 8	93 53	+12 30	p.
	955		318	0·476	103 55	175 15	116 0	− 5 53	Q.
	956		316	0·154	316 8	207 56	148 41	+ 9 28	R.
	957		315	0·247	292 45	215 6	155 51	+ 9 2	S.
	958		314	0·369	278 44	223 24	164 9	+ 7 10	T.
	959		314	0·506	280 2	231 56	172 41	+ 9 22	t.
30.	960	180·430	320	0·668	74 36	162 37	76 31	+10 26	P.
	961		319	0·623	128 57	174 10	88 4	−21 58	Q.
	962		319	0·550	129 16	178 39	92 33	−18 57	q.
	963		318	0·156	168 54	202 45	116 39	− 5 54	R.
	964		318	0·142	142 51	199 27	113 21	− 3 47	r.
	965		318	0·096	179 29	209 30	123 24	+ 2 43	ϱ.
	966		316	0·523	280 6	234 58	148 52	+ 9 20	S.
	967		315	0·622	277 26	242 6	156 0	+ 8 48	T.
	968		314	0·735	273 28	251 9	165 3	+ 6 46	U.
July 1.	969	181·656	320	0·439	69 12	180 10	76 41	+10 43	P.
	970		320	0·775	72 15	155 3	51 34	+13 44	p.
	971		320	0·809	69 41	152 2	48 33	+16 12	p′.
	972		319	0·395	161 14	198 28	94 59	−19 6	Q.
	973		318	0·300	237 29	220 14	116 45	− 5 37	R.
	974		316	0·737	277 55	252 22	148 53	+ 9 44	S.
	975		315	0·810	276 28	259 7	155 38	+ 9 3	T.
	976		314	0·895	274 3	268 36	165 7	+ 7 13	U.
5.	977	185·618	322	0·972	102 18	133 56	334 15	−11 40	P.
	978		323	0·341	235 7	225 23	65 42	− 7 38	Q.
	979		323	0·520	225 28	232 3	72 22	−17 49	R.
	980		321	0·736	241 22	251 47	92 6	−17 35	S.
	981		321	0·717	235 34	248 22	88 41	−20 43	s.
	982		318	0·927	261 59	276 5	116 24	− 5 27	T.
	983		320	0·462	287 18	235 27	75 46	+11 19	U.
	984		324	0·173	285 15	218 30	58 49	+ 6 10	V.
	985		324	0·122	287 41	215 36	55 55	+ 5 42	W.
6.	986	186·509	322	0·900	104 44	147 24	335 4	−11 46	P.
	987		323	0·565	251 45	242 26	70 6	− 6 59	Q.
	988		323	0·504	247 32	237 47	65 27	− 7 46	q.
	989		324	0·647	235 58	244 6	71 46	−18 3	R.
	990		324	0·724	244 0	252 16	79 56	−15 38	r.
	991		324	0·805	244 37	259 26	87 6	−17 37	S.
	992		324	0·833	246 8	262 39	90 19	−17 17	s.
	993		318	0·985	263 44	289 17	116 57	− 5 16	T.
	994		320	0·628	283 15	248 6	75 46	+11 15	U.
	995		321	0·385	277 37	232 14	59 54	+ 6 21	V.
	996		321	0·311	278 2	227 42	55 22	+ 5 59	W.
	997	186·545	322	0·899	104 52	147 33	334 43	−11 51	P.
	998		323	0·573	252 3	243 0	70 10	− 6 59	Q.
	999		323	0·512	247 52	238 19	65 29	− 7 47	q.
	1000		324	0·652	236 25	244 37	71 47	−17 58	R.
	1001		324	0·729	244 23	252 48	79 50	−15 32	r.
	1002		324	0·811	244 56	260 7	87 17	−17 33	S.
	1003		320	0·634	282 55	248 37	75 47	+11 6	U.
	1004		321	0·321	277 13	228 21	55 31	+ 5 48	W.
8.	1005	188·632	326	0·827	83 20	156 1	313 35	+ 8 16	P.
	1006		326	0·845	83 17	154 8	311 42	+ 8 20	p.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1862.									
July 8.	1007	188·632	325	0·878	103° 10′	151° 49′	309° 23′	− 8° 59′	Q.
	1008		325	0·925	103 4	145 26	303 0	− 9 53	q′.
	1009		325	0·927	106 30	145 48	303 22	−13 2	q″.
	1010		325	0·576	115 57	179 51	337 25	−10 55	q.
	1011		321	0·845	259 42	268 16	65 50	− 7 10	R.
	1012		321	0·892	261 44	273 57	71 31	− 6 13	r.
	1013		323	0·928	251 26	277 21	74 55	−16 15	S.
	1014		323	0·952	251 53	281 36	79 10	−16 34	s.
	1015		320	0·914	280 59	277 58	75 32	+10 56	T.
11.	1016	191·600	326	0·283	75 46	198 46	314 14	+ 8 30	P.
	1017		326	0·318	77 30	196 33	312 1	+ 8 30	p.
	1018		331	0·977	92 12	137 12	252 40	+ 0 47	Q.
	1019		328	0·922	102 43	143 36	264 4	− 8 8	q.
	1020		329	0·473	126 51	191 20	306 48	−11 40	R.
	1021		329	0·412	124 6	194 1	309 29	− 8 42	r.
	1022		329	0·585	123 16	183 42	299 10	−14 2	ϱ.
	1023		322	0·323	173 9	211 40	327 8	−14 25	S.
	1024		322	0·315	190 45	217 25	332 53	−13 55	T.
	1025		322	0·292	210 20	222 40	338 8	−10 40	U.
13.	1026	193·472	331	0·793	95 5	163 12	252 7	+ 9 14	P.
	1027		330	0·680	109 37	257 19	346 14	− 7 59	p.
	1028		325	0·277	189 45	218 19	307 14	−11 33	Q.
	1029		325	0·239	201 7	219 49	308 44	− 8 45	q.
	1030		325	0·344	174 29	213 25	302 20	−15 29	q′.
	1031		332	0·599	249 36	250 15	339 10	−10 6	R.
	1032		327	0·551	239 22	244 31	333 26	−13 52	r.
	1033		327	0·492	231 41	238 50	327 45	−14 53	r′.
	1034		327	0·381	224 39	236 22	325 17	−17 22	ϱ.
	1035		326	0·178	296 12	225 51	314 46	+ 8 16	S.
	1036		326	0·137	305 8	223 6	312 1	+ 8 27	s.
14.	1037	194·465	331	0·634	97 14	178 17	253 7	+ 0 59	P.
	1038		330	0·503	117 49	189 54	264 44	− 8 4	Q.
	1039		325	0·378	227 14	233 23	308 13	−10 54	R.
	1040		325	0·376	236 6	234 52	309 42	− 8 53	r.
	1041		325	0·386	209 3	227 19	302 9	−15 55	ϱ.
	1042		327	0·614	247 36	251 37	326 27	−11 48	S.
	1043		327	0·544	243 39	246 2	320 52	−11 48	s.
	1044		322	0·772	256 27	265 46	340 36	−10 1	T.
	1045		322	0·736	251 17	261 35	336 25	−12 52	t.
	1046		326	0·394	283 55	240 15	315 5	+ 8 11	U.
15.	1047	195·437	331	0·443	100 34	192 17	253 19	+ 1 4	P.
	1048		330	0·330	134 28	203 43	264 45	− 8 0	Q.
	1049		325	0·541	243 55	246 45	307 47	−11 37	R.
	1050		325	0·547	249 34	248 28	309 30	− 9 2	r.
	1051		327	0·699	251 53	259 33	320 35	−11 42	S.
	1052		327	0·771	253 43	265 52	326 54	−12 16	T.
	1053		322	0·900	260 5	280 45	341 47	−10 14	U.
	1054		326	0·585	281 17	253 58	315 0	+ 8 2	V.
16.	1055	196·444	331	0·227	108 49	206 30	253 15	+ 7 45	P.
	1056		331	0·308	147 3	208 22	255 7	− 9 39	Q.
	1057		331	0·365	139 45	204 12	250 57	−10 35	q.
	1058		332	0·217	179 24	218 10	264 55	− 7 49	R.
	1059		330	0·382	246 1	238 55	285 40	− 6 2	S.
	1060		330	0·412	245 35	240 28	287 13	− 7 3	s.
	1061		334	0·707	252 50	261 16	308 1	−11 31	T.
	1062		334	0·718	257 5	263 3	309 48	− 8 53	t.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1862.									
July 16.	1063	196·444	325	0·846	256° 37′	274° 35′	321° 20′	−12° 7′	U.
	1064		327	0·897	258 17	280 51	327 36	−12 5	V.
	1065		327	0·980	262 25	296 28	343 13	−10 35	W.
	1066		326	0·712	278 58	264 36	311 21	+ 6 36	X.
	1067		326	0·724	280 50	265 35	312 20	+ 7 57	x.
	1068		326	0·760	281 20	268 40	315 25	+ 8 22	Y.
17.	1069	197·432	336	0·986	86 26	139 18	172 2	+ 8 54	P.
	1070		336	0·988	84 32	138 31	171 15	+10 44	p.
	1071		331	0·064	193 22	220 43	253 27	+11 6	Q.
	1072		332	0·272	177 15	218 5	250 49	−15 31	R.
	1073		332	0·250	199 53	223 58	256 42	− 9 14	r.
	1074		330	0·300	228 9	232 9	264 53	− 7 57	S.
	1075		334	0·551	258 59	252 12	284 56	− 4 34	t.
	1076		334	0·589	254 25	253 56	286 40	− 7 51	*r*.
	1077		334	0·628	257 59	257 15	289 59	− 6 37	T.
	1078		325	0·844	257 12	275 19	308 3	−12 0	U.
	1079		327	0·939	259 17	288 9	320 53	−12 42	v.
	1080		327	0·972	260 47	294 53	327 37	−12 17	V.
	1081		326	0·871	279 38	280 50	313 34	+ 6 38	W.
	1082		326	0·859	281 10	279 25	312 9	+ 7 59	w.
	1083		335	0·384	304 31	240 15	272 59	+15 22	X.
	1084		335	0·351	303 34	238 33	271 17	+14 10	x.
18.	1085	198·417	336	0·965	83 19	145 51	164 37	+12 38	P.
	1086		337	0·925	87 47	153 19	172 5	+ 8 36	p.
	1087		331	0·238	261 3	234 12	252 58	+ 1 24	Q.
	1088		332	0·377	237 32	238 38	257 24	− 8 41	R.
	1089		333	0·320	219 44	231 43	250 29	−10 30	r.
	1090		330	0·465	248 38	245 50	264 36	− 7 36	S.
	1091		334	0·801	262 38	272 55	291 41	− 7 0	T.
	1092		334	0·734	262 35	267 2	285 48	− 5 49	t.
	1093		325	0·940	260 37	289 15	308 1	−11 50	*r*.
	1094		326	0·959	280 44	294 43	313 29	+ 6 45	U.
	1095		326	0·953	282 41	293 40	312 26	+ 8 39	u.
	1096		335	0·512	297 36	250 22	269 8	+15 26	V.
	1097		335	0·575	294 13	255 11	273 57	+14 47	W.
20.	1098	200·490	336	0·827	88 12	167 11	156 33	+ 9 15	p.
	1099		336	0·747	83 25	174 55	164 17	+12 41	P.
	1100		337	0·685	86 12	179 55	169 17	+10 19	Q.
	1101		337	0·625	87 9	184 29	173 51	+ 9 25	q.
	1102		331	0·657	272 24	263 53	253 15	+ 1 24	R.
	1103		332	0·649	254 48	260 45	250 7	− 9 37	S.
	1104		330	0·738	260 28	268 44	258 6	− 7 55	T.
	1105		330	0·768	265 50	272 13	261 35	− 4 33	t.
	1106		334	0·989	268 42	303 33	292 55	− 6 26	U.
	1107		335	0·835	290 59	279 32	268 54	+15 12	V.
	1108		335	0·876	289 36	284 22	273 44	+14 16	W.
	1109		338	0·945	294 32	294 21	283 43	+19 6	X.
21.	1110	201·458	336	0·686	88 21	180 43	156 21	+ 9 13	p.
	1111		336	0·581	81 52	188 57	164 35	+12 32	P.
	1112		337	0·506	85 10	193 52	169 30	+10 2	Q.
	1113		337	0·435	84 55	198 29	174 7	+ 9 32	q.
	1114		332	0·791	259 22	273 49	249 27	−10 10	R.
	1115		330	0·868	264 4	282 39	258 17	− 8 5	S.
	1116		331	0·811	274 41	277 58	253 36	+ 1 33	T.
	1117		335	0·963	289 35	298 46	274 24	+14 0	U.
	1118		335	0·932	290 44	293 3	268 41	+15 8	u.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1862.									
July 21.	1119	201·458	338	0·982	294° 52′	303° 55′	279° 33′	+19° 1′	V.
	1120		339	0·638	306 34	260 37	236 15	+22 43	W.
	1121		339	0·635	303 32	261 2	236 40	+20 48	X.
25.	1122	205·447	340	0·748	81 27	179 47	98 50	+16 1	P.
	1123		342	0·820	86 6	172 41	91 44	+12 57	Q.
	1124		342	0·826	80 24	172 23	91 26	+17 39	R.
	1125		341	0·524	77 0	172 7	91 10	+20 31	S.
	1126		337	0·452	282 29	254 43	173 46	+ 6 45	T.
	1127		336	0·416	294 5	251 46	170 49	+11 27	U.
	1128		337	0·383	285 18	250 14	169 17	+ 7 42	V.
	1129		336	0·331	298 52	246 11	165 14	+11 49	W.
	1130	205·608	340	0·721	81 44	182 18	99 4	+15 35	P.
	1131		340	0·724	83 45	181 53	98 39	+14 10	P_1
	1132		342	0·801	86 23	174 41	91 27	+12 41	Q.
	1133		342	0·803	80 36	174 51	91 37	+17 19	R.
	1134		341	0·495	76 46	199 35	116 21	+15 9	S.
	1135		337	0·483	282 8	256 54	173 40	+ 6 37	T.
	1136		336	0·446	293 11	253 55	170 41	+11 26	U.
	1137		337	0·414	284 23	252 22	169 8	+ 7 27	V.
	1138		336	0·364	296 27	248 32	165 18	+11 34	W.
26.	1139	206·446	340	0·578	78 28	194 35	99 28	+15 57	P.
	1140		340	0·572	80 20	194 42	99 35	+14 50	P_1.
	1141		342	0·680	85 41	186 7	91 0	+12 44	Q.
	1142		342	0·704	82 24	184 29	89 22	+15 13	R.
	1143		342	0·673	78 23	187 25	92 18	+17 32	S.
	1144		343	0·972	112 22	154 9	59 2	−12 0	T.
	1145		337	0·644	282 24	268 55	173 48	+ 6 38	U.
	1146		336	0·605	290 22	265 46	170 39	+11 27	V.
	1147		336	0·532	291 26	260 35	165 28	+11 26	W.
	1148	206·625	340	0·544	77 52	197 9	99 30	+15 46	P.
	1149		340	0·540	79 40	197 14	99 35	+14 45	P_1.
	1150		342	0·652	86 0	188 27	90 48	+12 22	Q.
	1151		342	0·677	82 34	186 52	89 13	+14 52	R.
	1152		342	0·643	78 1	190 0	92 21	+17 21	S.
	1153		343	0·966	113 8	155 47	58 8	−12 26	T.
	1154		337	0·679	282 27	271 44	174 5	+ 6 36	U.
	1155		336	0·638	289 57	268 27	170 48	+11 24	V.
	1156		336	0·565	290 35	263 7	165 28	+11 14	W.
27.	1157	207·430	340	0·386	71 25	209 0	99 55	+15 27	P.
	1158		342	0·512	83 37	199 29	90 24	+12 34	Q.
	1159		342	0·538	79 35	198 8	89 3	+15 0	R.
	1160		342	0·501	72 38	201 43	92 38	+17 43	S.
	1161		343	0·899	115 3	167 57	58 52	−11 48	T.
	1162		343	0·946	115 51	161 7	52 2	−13 56	t.
	1163		345	0·969	112 50	155 56	46 51	−11 54	τ.
	1164		337	0·801	282 49	283 3	173 58	+ 6 23	U.
	1165		336	0·770	289 11	280 8	171 3	+11 22	V.
	1166		336	0·710	289 8	274 56	165 51	+11 5	W.
28.	1167	208·458	340	0·201	41 39	224 21	100 42	+15 19	P.
	1168		342	0·304	79 39	213 49	90 10	+11 15	Q.
	1169		342	0·343	69 45	212 49	89 10	+15 5	R.
	1170		342	0·320	56 0	216 35	92 56	+18 7	S.
	1171		346	0·972	111 31	220 22	96 43	−10 20	T.
	1172		343	0·774	119 0	182 51	59 12	−11 16	U.
	1173		345	0·862	117 4	173 47	50 8	−12 5	V.
	1174		344	0·667	254 0	268 37	144 58	−12 10	W.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1862.					° ′	° ′	° ′	° ′	
July 28.	1175	208·458	344	0·625	252 9	265 10	141 31	−11 58	X.
	1176		336	0·923	283 51	298 16	174 37	+ 6 15	Y.
	1177		337	0·905	289 12	295 55	172 16	+11 14	Z.
29.	1178	209·444	340	0·200	332 59	238 44	101 6	+14 48	P.
	1179		342	0·120	44 20	227 40	90 2	+11 21	Q.
	1180		342	0·184	37 40	226 35	88 57	+14 59	R.
	1181		342	0·218	16 19	230 10	92 32	+18 8	S.
	1182		346	0·898	114 15	169 48	52 10	−10 15	T.
	1183		343	0·626	124 54	196 32	58 54	−10 42	U.
	1184		345	0·736	124 58	188 27	50 49	−14 3	v.
	1185		345	0·776	120 37	183 57	46 19	−12 8	V.
	1186		344	0·775	257 58	279 3	141 25	−12 54	W.
	1187		344	0·805	260 42	282 24	144 46	−11 40	X.
	1188		337	0·976	289 31	309 36	171 58	−10 41	Z.
30.	1189	210·470	347	0·949	111 27	162 27	10 15	− 8 43	P.
	1190		346	0·771	118 0	184 39	32 27	− 9 44	Q.
	1191		345	0·584	133 57	202 45	50 33	−13 51	R.
	1192		345	0·622	128 17	198 38	46 26	−12 10	r.
	1193		343	0·484	140 7	210 21	58 9	−12 41	S.
	1194		343	0·441	138 7	212 2	59 50	−10 14	s.
	1195		344	0·893	262 30	293 15	141 3	−12 59	T.
	1196		340	0·378	305 18	253 16	101 4	+14 36	U.
	1197		342	0·196	311 36	242 26	90 14	+11 32	V.
	1198		342	0·217	330 31	240 52	88 40	+15 17	W.
	1199		342	0·295	328 36	244 29	92 17	+18 19	X.
	1200	210·661	347	0·936	112 16	165 4	10 9	− 9 0	P.
	1201		346	0·747	119 18	187 11	32 16	−10 0	Q.
	1202		345	0·557	136 36	205 22	50 27	−14 2	R.
	1203		345	0·592	130 40	201 25	46 30	−12 25	r.
	1204		343	0·458	143 56	213 1	58 6	−12 54	S.
	1205		343	0·410	142 32	214 54	59 59	−10 26	s.
	1206		344	0·915	263 24	296 30	141 35	−12 54	T.
	1207		344*a*	0·523	226 9	255 40	100 45	−15 57	T_1.
	1208		340	0·413	303 18	255 50	100 55	−14 34	U.
	1209		342	0·234	306 27	245 8	90 13	+11 32	V.
	1210		342	0·244	323 29	243 24	88 29	+15 16	W.
	1211		342	0·324	323 2	247 15	92 20	− 8 14	X.
31.	1212	211·495	348	0·985	114 4	155 20	348 36	−12 3	P.
	1213		347	0·850	114 57	177 21	10 37	− 8 53	p.
	1214		346	0·614	124 40	199 4	32 20	− 9 38	Q.
	1215		345	0·456	144 14	213 54	47 10	−12 45	R.
	1216		345	0·420	145 18	215 56	49 12	−11 31	r.
	1217		345	0·431	150 9	216 57	50 13	−11 28	ϱ.
	1218		343	0·354	166 39	225 6	58 22	−12 58	S.
	1219		343	0·298	170 56	227 46	61 2	−10 26	s.
	1220		349	0·571	236 41	259 6	92 22	−18 0	T.
	1221		340	0·564	297 56	267 17	100 33	+14 30	U.
	1222		342	0·484	301 26	261 26	94 42	+15 1	V.
	1223		342	0·408	296 27	257 6	90 22	+11 43	W.
	1224		342	0·391	306 8	254 57	88 13	+15 6	X.
Aug. 1.	1225	212·455	348	0·927	116 36	168 48	348 27	−12 0	P.
	1226		347	0·714	119 41	191 30	11 9	− 8 51	Q.
	1227		346	0·453	136 5	212 33	32 12	− 9 32	R.
	1228		345	0·345	169 54	227 14	46 53	−12 19	S.
	1229		345	0·311	175 54	229 48	49 27	−11 29	s.
	1230		345	0·344	178 10	230 2	49 41	−13 38	σ.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1862.									
Aug. 1.	1231	212·455	343	0·329	203° 50′	238° 48′	58° 27′	−12° 44′	T.
	1232		343	0·260	203 39	237 49	57 28	− 8 43	t.
	1233		343	0·309	215 2	241 50	61 29	−10 26	τ.
	1234		349	0·730	247 49	274 37	94 16	−19 1	U.
	1235		340	0·721	295 19	280 28	100 7	+14 21	V.
	1236		342	0·674	297 6	276 30	96 9	+15 9	W.
	1237		342	0·591	294 36	270 29	90 8	+12 45	X.
	1238		342	0·569	299 18	268 27	88 6	+15 10	Y.
2.	1239	213·517	351	0·975	114 41	160 13	324 48	−11 25	P.
	1240		351	0·945	116 27	166 50	331 25	−12 1	p.
	1241		350	0·817	121 1	183 50	348 25	−12 9	Q.
	1242		348	0·625	124 10	199 59	4 34	− 9 4	R.
	1243		348	0·539	129 15	206 49	11 24	− 9 15	r.
	1244		346	0·302	163 51	227 25	32 0	− 9 32	S.
	1245		345	0·346	210 41	242 15	46 50	−13 4	T.
	1246		345	0·338	217 30	244 14	48 49	−11 42	t.
	1247		345	0·378	216 1	244 50	48 25	−14 7	τ.
	1248		343	0·470	243 50	257 44	62 19	−11 3	U.
	1249		343	0·444	236 20	254 11	58 46	−12 35	u.
	1250		343	0·387	237 32	251 56	56 31	− 9 47	u′.
	1251		340	0·865	294 29	295 43	100 18	+14 15	V.
	1252		342	0·768	293 21	285 49	90 24	+12 57	W.
	1253		342	0·752	296 40	284 9	88 44	+15 21	X.
3.	1254	214·514	354	0·969	90 22	160 10	310 36	+12 36	p.
	1255		353	0·936	93 82	166 43	317 9	+ 9 55	P.
	1256		352	0·909	117 32	173 31	323 57	−11 30	Q.
	1257		352	0·865	119 14	179 14	329 40	−11 43	q.
	1258		348	0·681	127 3	197 37	348 3	−12 7	R.
	1259		348	0·655	129 37	200 12	350 38	−12 50	r.
	1260		350	0·453	138 40	215 1	5 27	−10 2	S.
	1261		350	0·376	146 47	220 55	11 21	− 9 30	s.
	1262		346	0·284	208 13	241 9	31 35	− 9 44	T.
	1263		345	0·463	236 53	256 6	46 32	−13 21	U.
	1264		345	0·469	242 17	258 4	48 30	−11 41	u.
	1265		345	0·498	238 26	258 19	48 45	−14 18	u′.
	1266		343	0·635	255 45	271 54	62 20	−11 14	V.
	1267		343	0·600	251 25	268 23	58 49	−12 31	v.
	1268		343	0·550	252 58	265 40	56 6	−10 4	v′.
	1269		340	0·952	294 57	309 22	99 48	+14 18	W.
	1270		342	0·890	293 15	299 49	90 15	+12 53	X.
	1271		342	0·878	296 6	298 10	88 36	+15 23	Y.
	1272	214·524	351*a*	0·370	11 52	236 31	26 49	+27 41	O.
	1273		351*a*	0·359	7 2	238 27	28 45	+26 54	o.
	1274		354	0·971	90 27	159 57	309 55	+12 30	p.
	1275		353	0·939	93 18	166 15	316 33	+10 7	P.
	1276		352	0·912	117 23	173 2	323 20	−11 27	Q.
	1277		352	0·867	119 13	179 3	329 21	−11 45	q.
	1278		348	0·679	127 15	197 48	348 6	−12 10	R.
	1279		348	0·653	129 30	200 16	350 34	−12 44	r.
	1280		350	0·450	138 44	215 9	5 27	−10 0	S.
	1281		350	0·374	146 55	221 4	11 22	− 9 27	s.
	1282		346	0·282	208 49	241 17	31 35	− 9 33	T.
	1283		345	0·463	237 8	256 12	46 30	−13 14	U.
	1284		345	0·471	242 21	258 12	48 30	−11 45	u.
	1285		345	0·500	238 50	258 36	48 54	−14 17	u′.
	1286		343	0·635	255 59	271 59	62 17	−11 8	V.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1862.									
Aug. 3.	1287	214·524	343	0·603	251° 42′	268° 40′	58° 58′	−12° 28′	v.
	1288		343	0·552	253 24	265 53	56 11	− 9 55	v′.
	1289		340	0·957	294 48	310 21	100 39	+14 7	W.
	1290		342	0·895	293 30	300 23	90 41	+13 6	X.
	1291		342	0·879	296 18	298 25	88 43	+15 33	Y.
4.	1292	215·536	354	0·418	344 50	249 59	25 56	+27 39	P.
	1293		354	0·439	338 22	253 23	29 20	+27 11	p.
	1294		353	0·825	94 18	181 36	317 33	+10 1	Q.
	1295		353	0·892	90 30	173 54	309 51	+13 14	q.
	1296		355	0·981	109 30	159 45	295 42	− 5 50	R.
	1297		351	0·793	121 52	188 2	323 59	−11 27	S.
	1298		351	0·724	124 6	194 24	330 21	−11 9	s.
	1299		348	0·518	138 7	212 9	348 6	−12 5	T.
	1300		348	0·481	138 39	214 22	350 19	−10 54	t.
	1301		350	0·307	267 4	229 54	5 51	−10 0	U.
	1302		346	0·408	241 20	255 38	31 35	− 9 37	V.
	1303		345	0·652	251 39	272 43	48 40	−14 20	W.
	1304		345	0·616	252 11	270 28	46 25	−12 47	w.
	1305		345	0·639	255 32	272 58	48 55	−11 40	w′.
	1306		343	0·758	259 51	283 10	59 7	−12 30	X.
	1307		343	0·720	261 41	280 33	56 30	−10 10	x.
	1308		343	0·790	262 38	286 39	62 36	−11 22	x′.
	1309		340	0·995	295 44	322 41	98 38	+14 0	Y.
	1310		342	0·970	294 4	313 53	89 50	+12 56	Z.
	1311		342	0·962	296 32	312 30	88 27	+15 23	z.
5.	1312	216·519	354	0·675	95 2	195 53	317 53	+ 9 41	P.
	1313		354	0·684	91 52	195 14	317 14	+11 51	p.
	1314		353	0·770	89 49	188 2	310 2	+13 47	Q.
	1315		353	0·763	91 45	188 35	310 35	+12 17	q.
	1316		356	0·912	111 56	173 54	295 54	− 5 50	R.
	1317		351	0·654	128 58	201 46	323 46	−11 53	S.
	1318		348	0·384	157 55	225 33	347 33	−12 18	T.
	1319		348	0·345	163 33	228 38	350 38	−11 24	t.
	1320		350	0·298	197 59	240 3	2 3	−11 1	U.
	1321		350	0·293	212 0	244 4	6 4	− 9 48	u.
	1322		346	0·575	255 55	269 44	31 44	− 9 40	V.
	1323		346	0·528	256 40	266 58	28 58	− 7 54	v.
	1324		345	0·767	259 34	284 44	46 44	−13 13	W.
	1325		345	0·784	262 20	286 54	48 54	−11 41	w.
	1326		345	0·790	258 51	286 35	48 35	−14 28	w′.
	1327		343	0·884	264 39	297 42	59 42	−12 42	X.
	1328		343	0·907	266 48	301 8	63 8	−11 31	x.
6.	1329	217·519	353	0·431	93 57	210 31	318 20	+ 9 50	P.
	1330		353	0·498	89 14	209 50	317 39	+12 15	p.
	1331		354	0·607	87 48	202 23	310 12	+14 9	Q.
	1332		354	0·603	90 36	202 28	310 17	+12 26	q.
	1333		355	0·797	114 53	188 0	295 49	− 5 32	R.
	1334		350	0·412	148 42	222 25	330 14	−11 6	S.
	1335		350	0·449	145 44	219 48	327 37	−11 46	s.
	1336		350	0·435	139 55	216 52	324 41	−11 13	σ.
	1337		351	0·320	193 2	239 24	347 13	−12 18	T.
	1338		351	0·313	203 31	242 43	350 32	−11 37	t.
	1339		347	0·382	232 54	253 48	1 37	−10 56	U.
	1340		346	0·735	263 2	283 46	31 35	−10 4	V.
	1341		346	0·897	264 37	300 14	48 3	−13 26	W.
	1342		346	0·902	266 16	301 12	49 1	−12 8	w.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1862.									
Aug. 6.	1343	217·519	345	0·964	267° 37′	311° 41′	59° 30′	−12° 59′	X.
	1344		343	0·974	269 17	314 25	62 14	−11 48	x.
	1345	217·692	353	0·448	94 45	212 59	318 21	+ 9 19	P.
	1346		353	0·461	89 46	212 25	317 47	+11 39	p.
	1347		354	0·576	88 14	204 46	310 8	+13 37	Q.
	1348		354	0·571	91 16	204 55	310 17	+11 51	q.
	1349		355	0·774	116 21	190 31	295 53	− 6 8	R.
	1350		350	0·389	154 39	225 19	330 41	−11 38	S.
	1351		350	0·429	150 11	222 16	327 38	−12 16	s.
	1352		350	0·466	143 40	218 27	323 49	−11 46	σ.
	1353		347	0·449	244 51	260 28	5 50	−10 13	U.
	1354		346	0·762	264 6	286 24	31 46	−10 4	V.
	1355		346	0·917	265 26	303 20	48 42	−13 25	W.
	1356		346	0·920	267 15	304 10	49 32	−11 54	w.
	1357		345	0·977	268 4	315 11	60 33	−13 11	X.
	1358		343	0·986	269 40	318 0	63 22	−12 2	x.
7.	1359	218·440	353	0·293	91 58	223 28	318 13	+ 9 20	P.
	1360		353	0·315	85 42	222 31	317 16	+11 28	p.
	1361		354	0·436	84 8	215 17	310 2	+13 57	Q.
	1362		354	0·427	86 57	215 35	310 20	+12 38	q.
	1363		355	0·656	119 56	201 16	296 1	− 5 52	R.
	1364		351	0·308	181 43	236 40	331 25	−11 12	S.
	1365		351	0·340	171 29	232 53	327 38	−12 4	s.
	1366		351	0·359	160 17	228 49	323 34	−11 15	σ.
	1367		350	0·385	226 18	252 38	347 23	−12 38	T.
	1368		350	0·454	232 7	257 18	352 3	−14 38	t.
	1369		346	0·860	267 33	297 18	32 3	−10 8	U.
10.	1370	221·515	356	0·547	109 35	210 19	261 27	+ 2 40	P.
	1371		356	0·568	106 7	208 40	259 48	+ 4 26	p.
	1372		355	0·216	203 7	245 6	296 14	− 5 47	Q.
	1373		351	0·646	257 29	279 8	330 16	−11 48	R.
	1374		351	0·608	256 39	276 21	327 29	−11 3	r.
	1375		351	0·543	250 53	270 36	321 44	−11 40	ρ.
	1376		353	0·398	292 58	266 41	317 49	+ 9 18	S.
	1377		353	0·387	300 3	265 34	316 42	+11 56	s.
	1378		354	0·295	309 3	259 12	310 20	+13 15	T.
	1379		354	0·284	300 4	259 22	310 30	+10 35	t.
15.	1380	226·710	358	0·968	97 15	172 9	149 36	+10 27	p.
	1381		358	0·896	95 56	184 3	161 30	+12 17	P.
	1382		357	0·678	99 30	205 23	182 50	+ 9 35	Q.
	1383		357	0·625	91 57	209 49	187 16	+14 12	q.
	1384		359	0·662	136 13	212 12	189 39	−13 46	R.
18.	1385	229·655	360	0·994	93 39	166 1	101 41	+14 16	P.
	1386		358	0·427	92 49	226 12	161 52	+12 20	Q.
	1387		358	0·535	92 46	219 6	154 46	+13 32	q.
	1388		358	0·586	87 54	216 0	151 40	+16 50	q′.
	1389		358	0·791	126 48	201 54	137 34	−10 50	R.
	1390		357	0·086	70 15	247 8	182 48	+ 9 49	S.
	1391		359	0·335	193 47	249 54	185 34	−12 35	T.
	1392		359	0·336	215 10	257 8	192 48	−11 44	U.
19.	1393	230·438	361	0·965	94 42	176 11	100 45	+14 11	P.
	1394		363	0·994	97 15	167 31	92 5	+11 0	p.
	1395		362	0·839	83 58	195 10	119 44	+23 28	Q.
	1396		362	0·809	83 57	198 26	123 0	+23 4	q.
	1397		358	0·271	85 32	237 2	161 36	+12 29	R.
	1398		358	0·389	89 49	229 36	154 10	+13 10	r.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1862.									
Aug. 19.	1399	230·438	360	0·671	131° 27′	213° 27′	138° 1′	−10° 21′	S.
	1400		360	0·680	134 1	213 29	138 3	−12 13	s.
	1401		360	0·642	134 40	216 21	140 55	−11 22	σ.
	1402		359	0·361	220 48	260 14	184 48	−12 28	T.
	1403		359	0·363	231 9	263 36	188 10	−10 46	t.
	1404		359	0·426	239 32	268 43	193 17	−11 47	U.
	1405		359	0·118	313 45	258 0	182 34	+ 9 49	V.
	1406		359	0·087	338 41	255 2	179 36	+10 44	v.
20.	1407	231·459	361	0·882	95 37	190 23	100 28	+14 4	P.
	1408		363	0·942	98 44	181 52	91 57	+10 56	p.
	1409		362	0·698	81 28	210 12	120 17	+23 13	Q.
	1410		358	0·094	34 7	251 20	161 25	+12 5	R.
	1411		358	0·174	67 0	245 7	155 12	+13 23	r.
	1412		360	0·520	142 3	227 0	137 5	−10 41	S.
	1413		360	0·477	149 40	231 36	141 41	−12 1	s.
	1414		359	0·484	245 28	274 14	184 19	−12 32	T.
	1415		359	0·594	256 5	283 50	193 55	−12 15	U.
	1416		357	0·333	296 20	272 16	182 21	+ 9 20	V.
21.	1417	232·425	361	0·759	95 25	204 14	100 38	+14 12	P.
	1418		363	0·845	99 4	195 44	92 8	+11 26	p.
	1419		362	0·549	75 16	223 49	120 13	+23 22	Q.
	1420		362	0·507	72 41	227 13	123 37	+23 18	q.
	1421		360	0·360	160 0	240 48	137 12	− 9 36	R.
	1422		360	0·351	175 14	245 47	112 11	−11 53	r.
	1423		360	0·399	168 28	242 6	138 30	−13 23	ϱ.
	1424		359	0·631	258 48	287 52	184 16	−12 13	S.
	1425		359	0·746	264 34	298 3	194 27	−12 24	T.
	1426		358	0·210	314 33	264 51	161 15	+12 10	U.
	1427		357	0·533	295 25	286 8	182 32	+ 9 44	V.
22.	1428	233·551	361	0·578	94 1	219 51	100 16	+14 4	P.
	1429		363	0·680	99 31	211 52	92 17	+11 15	p.
	1430		362	0·376	60 21	239 10	119 35	+22 58	Q.
	1431		362	0·340	55 45	242 7	122 32	+22 28	q.
	1432		360	0·321	204 31	256 50	137 15	−11 32	R.
	1433		360	0·318	210 58	258 52	139 17	−11 1	r.
	1434		359	0·792	267 9	303 39	184 4	−12 11	S.
	1435		359	0·891	270 14	314 50	195 15	−12 47	T.
	1436		358	0·430	302 24	280 5	160 30	+12 14	U.
	1437		358	0·371	307 35	275 56	156 21	+13 28	u.
	1438		357	0·730	295 41	302 1	182 26	+ 9 59	V.
23.	1439	234·447	361	0·404	89 31	232 43	100 25	+14 8	P.
	1440		363	0·513	98 18	224 56	92 38	+11 24	p.
	1441		362	0·289	31 26	251 50	119 32	+23 19	Q.
	1442		362	0·268	19 28	255 35	123 17	+22 30	q.
	1443		360	0·404	240 21	271 31	139 13	−10 46	R.
	1444		360	0·445	245 13	274 51	142 33	−11 9	r.
	1445		359	0·893	271 13	316 11	183 53	−12 14	S.
	1446		359	0·959	273 19	326 53	194 35	−12 39	T.
	1447		358	0·598	299 47	292 33	160 15	+12 10	U.
	1448		358	0·569	304 5	290 7	157 49	+14 25	u.
	1449		357	0·851	296 30	314 32	182 14	+10 13	V.
24.	1450	235·472	361	0·204	72 6	247 8	100 18	+14 0	P.
	1451		364	0·969	121 13	182 57	36 7	− 9 48	Q.
	1452		360	0·569	257 11	286 10	139 20	−11 20	R.
	1453		362	0·333	343 39	268 46	121 56	+22 23	S.
	1454		358	0·762	298 47	306 42	159 52	+11 55	T.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1862.									
Aug. 24.	1455	235·472	357	0·950	297° 19′	329° 13′	182° 23′	+ 9° 58′	U.
25.	1456	236·442	364	0·894	124 9	196 35	35 59	− 9 46	P.
	1457		358	0·882	299 23	320 10	159 34	+12 6	Q.
	1458		361	0·130	355 56	260 45	100 9	+13 53	R.
	1459		362	0·486	324 16	283 11	122 35	+22 30	S.
	1460		362	0·461	332 39	279 20	118 44	+24 56	s.
	1461	236·468	364	0·889	124 5	197 15	36 17	− 9 33	P.
	1462		358	0·883	299 24	320 19	159 21	+12 7	Q.
	1463		361	0·131	355 27	260 52	99 54	+13 56	R.
	1464		362	0·488	324 15	283 19	122 21	+22 31	S.
	1465		362	0·461	302 41	284 56	123 58	+12 22	s.
26.	1466	237·461	364	0·767	128 44	211 34	36 31	− 9 39	P.
	1467		365	0·693	121 51	216 8	41 5	− 3 8	Q.
	1468		361	0·296	314 11	274 45	99 42	+13 52	R.
	1469		361	0·240	321 30	270 47	95 44	+14 11	r.
	1470		360	0·651	316 37	297 31	122 28	+22 41	S.
28.	1471	239·460	364	0·442	148 28	240 7	36 43	− 9 7	P.
	1472		365	0·265	146 52	248 24	45 0	− 2 3	Q.
	1473		365	0·317	141 43	245 0	41 36	− 2 36	q.
	1474		361	0·669	303 33	302 40	99 16	+14 10	R.
	1475		361	0·785	306 37	312 30	109 6	+17 13	r.
29.	1476	240·518	367	0·971	101 8	184 45	326 20	+10 50	P.
	1477		364	0·303	178 58	255 12	36 47	− 9 11	Q.
	1478		365	0·162	206 25	262 37	44 12	− 2 5	R.
	1479		365	0·182	189 23	259 39	41 14	− 3 5	r.
	1480		361	0·822	302 51	317 22	98 57	+14 10	S.
30.	1481	241·451	367	0·901	102 35	197 42	326 4	+10 31	P.
	1482		364	0·302	220 54	268 35	36 57	− 9 14	Q.
	1483		365	0·271	256 0	275 24	43 46	− 1 51	R.
	1484		361	0·922	303 13	330 38	99 0	+14 11	S.
Sept. 2.	1485	244·597	367	0·612	97 38	228 1	311 45	+14 14	P.
	1486		367	0·665	95 55	224 7	307 51	+15 48	p.
	1487		370	0·468	93 22	238 25	322 9	+14 50	q.
	1488		370	0·384	104 38	243 2	326 46	+ 9 21	Q.
	1489		369	0·869	128 48	208 3	291 47	−11 3	R.
	1490		369	0·809	131 50	215 0	298 44	−11 41	r.
	1491		368	0·709	138 10	225 14	308 58	−12 57	S.
	1492		368	0·638	141 21	231 12	314 56	−12 28	s.
	1493		364	0·777	273 38	313 54	37 38	− 9 4	T.
	1494		365	0·824	283 39	320 14	43 58	− 2 22	U.
4.	1495	246·428	369	0·247	81 33	254 50	312 36	+14 14	P.
	1496		369	0·320	83 19	250 34	308 20	+15 45	p.
	1497		368	0·650	145 35	233 28	291 14	−15 0	Q.
	1498		368	0·632	140 9	232 55	290 41	−11 20	q.
	1499		368	0·529	148 31	241 47	299 33	−11 46	R.
	1500		367	0·371	177 15	258 19	316 5	−12 27	S.
	1501		367	0·440	162 42	250 53	308 39	−12 52	s.
	1502		364	0·963	280 24	339 58	37 44	− 9 6	T.
6.	1503	248·465	369	0·404	182 59	261 25	290 17	−15 7	P.
	1504		369	0·350	202 7	269 18	298 10	−13 8	π.
	1505		369	0·323	211 50	272 29	301 21	−11 17	p.
	1506		368	0·402	235 49	282 26	311 18	−12 29	Q.
	1507		368	0·443	244 50	287 8	316 0	−12 9	q.
	1508		367	0·270	321 14	283 32	312 24	+14 27	R.
	1509		367	0·202	333 57	278 24	307 16	+14 48	r.
9.	1510	251·488	370	0·743	141 28	229 50	215 49	−15 17	P.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1862.									
Sept. 9.	1511	251·488	370	0·721	144° 57′	232° 45′	218° 44′	−16° 43′	p.
	1512		369	0·622	256 8	303 18	289 17	−15 44	Q.
	1513		369	0·653	266 24	308 45	294 44	−11 16	R.
	1514		369	0·710	266 30	312 53	298 52	−13 4	r.
	1515		369	0·730	270 10	315 28	301 27	−11 17	S.
	1516		369	0·837	273 20	325 52	311 51	−12 13	T.
	1517		367	0·799	305 57	325 50	311 49	+14 32	U.
10.	1518	252·582	370	0·599	152 9	244 35	215 3	−15 37	P.
	1519		370	0·556	159 6	249 40	220 8	−16 44	p.
	1520		371	0·771	265 44	318 30	288 58	−15 52	Q.
	1521		369	0·800	275 1	323 44	294 12	−10 1	R.
	1522		369	0·853	273 22	328 33	299 1	−12 53	r.
	1523		369	0·871	275 52	331 7	301 35	−11 22	S.
	1524		369	0·924	306 16	341 47	312 15	+14 37	T.
11.	1525	253·473	370	0·476	167 17	257 24	215 14	−15 34	P.
	1526		370	0·448	178 47	263 4	220 54	−16 49	p.
	1527		370	0·616	281 13	311 13	269 3	− 1 47	Q.
	1528		369	0·910	276 14	336 54	294 44	−12 27	R.
	1529		369	0·953	279 26	344 31	302 21	−11 5	S.
12.	1530	254·525	370	0·397	194 58	271 46	214 41	−15 49	P.
	1531		370	0·406	209 55	277 58	220 53	−16 31	p.
15.	1532	257·445	372	0·983	99 52	197 26	98 55	+15 27	P.
	1533		373	0·994	122 54	195 43	97 12	− 7 40	Q.
	1534		373*a*	0·659	113 29	236 57	138 26	+ 5 57	R.
	1535		370	0·662	260 3	312 50	214 19	−15 55	S.
	1536		370	0·735	263 50	319 27	220 56	−16 30	T.
16.	1537	258·525	372	0·914	100 32	212 32	98 42	+15 37	P.
	1538		374	0·940	125 32	210 56	97 6	− 7 47	Q.
	1539		373	0·962	121 10	206 13	92 23	− 4 22	q.
	1540		373*a*	0·449	116 8	252 36	138 46	+ 5 39	R.
	1541		370	0·807	268 35	328 11	214 21	−15 58	S.
	1542		370	0·866	270 42	334 46	220 56	−16 25	T.
18.	1543	260·478	372	0·668	98 51	239 29	97 57	+15 54	P.
	1544		377	0·400	98 25	258 10	116 38	+13 0	Q.
	1545		377	0·463	95 22	254 26	112 54	+15 12	q.
	1546		375	0·966	111 17	205 58	64 26	+ 5 13	R.
	1547		374	0·707	133 14	238 50	97 18	− 7 40	S.
	1548		373	0·744	127 1	234 38	93 6	− 4 10	s.
	1549		376	0·278	231 14	288 23	146 51	− 7 19	T.
	1550		376*a*	0·629	262 13	314 12	172 40	−13 48	U.
	1551		370	0·980	276 59	356 53	215 21	−15 47	V.
	1552		369	0·487	303 52	310 23	168 51	+10 37	W.
	1553		369	0·532	304 28	313 24	171 52	+11 9	w.
19.	1554	261·505	372	0·488	94 17	254 1	97 55	+16 8	P.
	1555		375	0·160	77 0	274 49	118 43	+12 40	Q.
	1556		376	0·872	112 40	221 23	65 17	+ 5 28	R.
	1557		377	0·960	126 34	210 18	54 12	− 9 0	S.
	1558		377	0·984	129 54	204 42	48 36	−13 17	s.
	1559		374	0·530	141 1	253 41	97 35	− 7 13	T.
	1560		373	0·560	132 30	250 0	93 54	− 3 43	t.
	1561		373	0·490	147 58	257 47	101 41	− 8 59	*r*.
	1562		369	0·642	302 9	322 22	166 16	+10 3	U.
	1563		369	0·680	303 31	325 16	169 10	+11 0	V.
	1564		369	0·720	303 35	328 34	172 28	+11 7	W.
20.	1565	262·495	378	0·668	65 16	250 53	80 45	+36 36	P.
	1566		372	0·306	82 20	267 45	97 37	+16 17	Q.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1862.									
Sept. 20.	1567	262·495	372	0·134	32° 27′	282° 12′	112° 4′	+14° 39′	q.
	1568		375	0·734	114 14	235 53	65 45	+ 5 25	R.
	1569		377	0·870	130 9	225 0	54 52	− 9 23	S.
	1570		377	0·904	131 19	221 8	51 0	−11 22	T.
	1571		377	0·951	128 44	213 26	43 18	−10 35	U.
	1572		377	0·966	133 15	211 11	41 3	−15 27	V.
	1573		374	0·357	157 29	267 52	97 44	− 7 5	W.
	1574		373	0·370	144 29	264 28	94 20	− 3 44	w.
	1575		374	0·331	171 12	272 30	102 22	− 8 57	w′.
	1576		374	0·832	303 37	339 57	169 49	+11 0	X.
	1577	262·639	372	0·276	79 41	269 54	97 43	+16 1	Q.
	1578		372	0·131	17 30	284 23	112 12	+14 28	q.
	1579		372	0·192	326 18	293 2	120 51	+12 39	q′.
	1580		375	0·712	115 10	237 57	65 45	+ 4 55	R.
	1581		377	0·853	130 55	227 17	55 6	− 9 31	S.
	1582		377	0·891	131 59	223 3	50 52	−11 33	T.
	1582		377	0·940	129 22	215 28	43 17	−10 48	U.
	1583		377	0·959	133 48	212 56	40 45	−15 37	V.
	1584		374	0·340	162 6	269 54	97 43	− 7 29	W.
	1585		374	0·345	148 12	266 35	94 24	− 4 4	w.
	1586		374	0·320	176 56	274 36	102 25	− 9 19	w′.
25.	1587	267·682	375	0·338	63 21	275 30	31 47	+22 11	P.
	1588		375	0·194	61 45	281 34	37 51	+15 49	p.
	1589		378	0·977	133 27	213 30	329 47	−15 36	Q.
	1590		377	0·405	193 42	283 20	39 37	−16 23	R.
	1591		377	0·304	197 2	285 40	41 57	−10 33	r.
	1592		377	0·315	210 47	289 58	46 15	−11 19	ϱ.
	1593		377	0·375	235 15	299 11	55 28	−12 11	S.
	1594		377	0·341	240 38	299 41	55 58	− 9 24	s.
	1595		377	0·726	231 58	311 6	67 23	−34 11	T.
	1596		377	0·364	292 13	309 38	65 55	+ 5 9	W.
	1597		373	0·825	282 1	342 1	98 18	− 7 12	U.
	1598		372	0·782	311 9	339 56	96 13	+16 20	W.
	1599		376	0·972	306 38	5 29	121 46	+12 12	X.
	1600		376	0·942	305 52	359 27	115 44	+11 51	x.
30.	1601	272·425	378	0·377	181 2	282 36	332 36	−13 18	P.
	1602		379	0·446	168 48	276 53	325 53	−14 17	p.
	1603		379	0·644	157 36	262 22	311 22	−19 27	p′.
	1604		379	0·142	325 48	300 12	349 12	+10 38	Q.
	1605		379	0·185	311 18	303 24	352 24	+ 9 20	q.
	1606		380	0·384	327 35	313 5	2 5	+17 48	R.
	1607		380	0·633	293 45	332 12	21 12	+ 3 41	S.
	1608		377	0·955	281 40	3 28	52 28	−11 37	T.
	1609		377	0·878	273 17	350 18	39 18	−16 22	U.
	1610		377	0·888	280 57	353 19	42 19	−10 10	V.
	1611		377	0·970	286 13	7 29	56 29	− 7 52	W.
	1612	272·444	378	0·377	181 37	283 50	332 34	−13 22	P.
	1613		379	0·446	169 25	277 8	325 52	−14 26	p.
	1614		379	0·645	158 11	262 34	311 18	−19 47	p′.
	1615		379	0·143	324 47	300 22	349 6	+10 33	Q.
	1616		379	0·162	310 7	302 9	351 53	+ 8 50	q′.
	1617		380	0·385	326 37	313 19	2 3	+17 29	R.
	1618		380	0·635	293 18	332 19	21 3	+ 3 23	S.
	1619		377	0·957	281 42	3 52	52 36	−11 39	T.
	1620		377	0·881	273 24	350 45	39 29	−16 23	W.
	1621		377	0·890	280 58	353 37	42 21	−10 13	V.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1862.									
Sept. 30.	1622	272·444	377	0·971	286° 20′	7° 45′	56° 29′	− 7° 48′	W.
Oct. 1.	1623	273·511	380	0·384	104 1	271 43	305 19	+10 46	P.
	1624		380	0·675	136 17	254 24	288 0	− 8 17	Q.
	1625		378	0·349	220 37	299 11	332 47	−13 3	R.
	1626		379	0·350	200 33	292 4	325 40	−13 40	r.
	1627		381	0·373	308 9	315 46	349 22	+10 34	S.
	1628		381	0·429	304 31	319 30	353 6	+ 9 32	s.
	1629		381*a*	0·584	317 49	328 44	2 20	+17 51	T.
	1630		377	0·964	277 3	5 34	39 10	−16 25	U.
	1631		377	0·972	284 10	8 49	42 25	−10 1	V.
3.	1632	275·446	378	0·595	262 47	326 32	332 41	−13 30	P.
	1633		379	0·518	254 9	319 17	325 26	−14 19	p.
	1634		381	0·780	302 10	347 30	353 39	+ 9 25	Q.
	1635		381	0·725	304 9	342 42	348 51	+10 10	q.
	1636		381	0·944	297 29	6 43	12 52	+ 3 16	R.
	1637	275·644	378	0·624	264 59	329 20	332 41	−13 27	P.
	1638		378	0·549	256 34	321 58	325 19	−14 38	p_1.
	1639		378	0·552	258 56	322 54	326 15	−13 42	p_2.
	1640		378	0·702	272 42	337 4	340 25	−11 24	p_3.
	1641		381	0·814	303 23	351 1	354 22	+ 9 31	Q.
	1642		381	0·761	304 28	345 57	349 18	+10 24	q.
5.	1643	277·500	382	0·717	80 46	256 12	233 13	+29 27	P.
	1644		382	0·629	82 24	262 49	239 50	+25 48	p.
	1645		383	0·771	91 24	248 46	225 47	+23 13	Q.
	1646		383	0·776	97 16	247 32	224 33	+18 50	q.
	1647		378	0·872	276 57	355 31	332 32	−13 27	R.
	1648		379	0·811	272 35	348 5	325 6	−15 2	r.
8.	1649	280·587	385	0·939	101 35	230 30	163 44	+16 6	P.
	1650		382	0·359	34 47	297 48	231 2	+26 53	Q.
	1651		382	0·326	14 6	305 30	238 44	+24 41	R.
	1652		384	0·635	309 31	340 22	273 36	+13 3	S.
	1653		384	0·567	310 2	335 24	268 38	+12 46	T.
9.	1654	281·453	385	0·855	101 5	243 3	164 0	+16 20	P.
	1655		382	0·387	8 56	309 31	230 28	+27 41	Q.
	1656		382	0·410	348 49	317 56	238 53	+24 48	R.
	1657		384	0·773	308 12	352 45	273 42	+12 57	S.
	1658		384	0·715	308 48	347 38	268 35	+13 5	T.
10.	1659	282·640	385	0·699	99 41	259 13	163 20	+16 2	P.
	1660		382	0·503	344 50	325 13	230 20	+27 38	Q.
	1661		382	0·579	331 2	334 32	238 39	+24 18	R.
	1662		384	0·918	307 51	10 14	274 21	+12 49	S.
11.	1663	283·870	385	0·542	95 52	272 22	163 17	+16 6	P.
	1664		382	0·627	334 35	337 47	228 42	+27 43	Q.
	1665		382	0·720	324 31	348 2	238 57	+24 6	R.
	1666		384	0·980	308 24	23 21	274 16	+12 51	S.
16.	1667	284·440	388	0·992	116 24	226 37	48 28	+ 0 42	P.
	1668		387	0·962	127 27	236 15	58 6	+ 9 2	Q.
	1669		386	0·539	93 27	277 47	99 38	+16 55	R.
	1670		386	0·594	95 7	273 40	95 31	+17 1	r.
	1671		385	0·355	308 38	329 26	151 17	+ 9 37	S.
17.	1672	289·604	388	0·925	117 58	242 38	47 58	+ 0 35	P.
	1673		387	0·863	130 9	252 18	57 38	+ 8 58	Q.
	1674		386	0·319	79 31	294 41	100 1	+16 21	R.
	1675		386	0·405	85 52	288 46	94 6	+16 58	r.
21.	1676	293·531	387	0·258	184 18	308 28	58 6	− 8 27	P.
	1677		388	0·279	130 2	298 22	48 0	+ 1 11	p.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1862.									
Oct. 21.	1678	293·531	389	0·398	170° 23′	300° 13′	49° 49′	−13° 44′	Q.
	1679		389	0·447	161 2	295 8	44 46	−13 24	q.
	1680		389*a*	0·794	299 0	6 28	116 6	+ 5 34	R.
23.	1681	295·483	390	0·932	133 17	249 35	331 32	−14 14	P.
	1682		387	0·418	261 34	336 17	58 14	− 8 49	Q.
	1683		387	0·446	253 52	335 43	57 40	−12 32	q.
	1684		387	0·373	267 2	335 1	56 58	− 5 32	q'.
	1685		388	0·187	275 2	325 56	47 53	+ 1 12	R.
	1686		389	0·394	239 23	328 52	50 49	−14 11	S.
	1687		389	0·365	237 2	327 4	49 1	−13 8	s.
24.	1688	296·427	391	0·878	92 12	256 10	324 43	+22 58	P.
	1689		391	0·909	91 23	252 1	320 34	+24 8	p.
	1690		390	0·841	136 15	262 41	331 14	−14 14	Q.
	1691		387	0·579	272 52	349 26	57 59	− 8 47	R.
	1692		387	0·608	267 9	349 56	58 29	−12 42	r.
	1693		387	0·560	278 13	349 10	57 43	− 5 28	ρ.
	1694		387	0·535	270 33	346 6	54 39	− 8 47	r'.
	1695		388	0·383	287 57	339 7	47 40	+ 1 38	S.
	1696		389	0·529	258 41	342 34	51 7	−14 3	T.
	1697		389	0·436	249 38	334 54	43 27	−13 30	t.
26.	1698	298·559	391	0·589	81 19	287 6	325 25	+23 18	P.
	1699		391	0·648	83 17	282 15	320 34	+23 59	p.
	1700		392	0·789	97 20	267 31	305 50	+17 11	Q.
	1701		393	0·902	141 35	258 58	297 17	−21 1	R.
	1702		390	0·541	152 4	292 28	330 47	−14 28	S.
	1703		387	0·884	283 11	19 39	57 58	− 8 31	T.
Nov. 11.	1704	314·470	397	0·427	79 18	312 9	125 46	+16 20	P.
	1705		398	0·373	196 11	332 25	145 2	−18 36	Q.
	1706		396	0·535	253 21	0 30	173 7	−16 53	R.
	1707		394	0·113	333 31	339 48	152 28	+ 7 19	S.
	1708		395	0·204	315 43	345 43	158 20	+ 7 37	T.
	1709	314·605	397	0·405	77 32	314 52	125 34	+16 15	P.
	1710		397	0·451	78 58	311 58	122 40	+17 11	p.
	1711		398	0·373	200 49	334 23	145 5	−18 42	Q.
	1712		398	0·416	192 9	330 29	141 11	−20 58	q.
	1713		396	0·555	255 4	2 22	173 4	−16 54	R.
	1714		396	0·446	232 39	348 44	159 26	−19 35	r.
	1715		394	0·136	323 43	341 44	152 26	+ 7 5	S.
	1716		395	0·236	311 57	347 55	158 37	+ 7 29	T.
12.	1717	315·500	399	0·675	89 31	295 22	93 23	+17 20	P.
	1718		399	0·556	89 28	304 2	102 3	+14 54	p.
	1719		397	0·700	125 32	292 45	90 46	− 7 5	Q.
	1720		397	0·678	127 44	294 48	92 49	− 8 10	q.
	1721		397	0·413	232 40	348 35	146 36	−17 54	R.
	1722		396	0·687	263 33	14 47	172 48	−16 53	S.
	1723		394	0·310	306 12	353 31	151 32	+ 7 6	T.
	1724		395	0·419	304 26	0 13	158 14	+ 7 46	U.
13.	1725	316·528	399	0·533	84 6	307 36	91 2	+16 52	P.
	1726		399	0·477	81 1	311 47	95 13	+16 43	p.
	1727		401	0·992	120 40	254 59	38 25	− 8 14	Q.
	1728		400	0·825	130 43	283 40	67 6	−13 38	R.
	1729		396	0·826	269 13	29 30	172 56	−16 51	S.
	1730		396	0·567	254 26	4 58	148 24	−17 36	s.
	1731		394	0·519	299 27	8 2	150 28	+ 6 18	T.
	1732		395	0·611	301 7	14 22	157 48	+ 7 50	U.
16.	1733	319·489	400	0·694	125 19	297 18	38 44	− 7 55	P.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1862.									
Nov. 16.	1734	319·489	400*a*	0·351	162° 44′	327° 0′	68° 26′	−13° 29′	Q.
	1735		396	0·919	270 18	44 14	145 40	−17 59	R.
	1736		394	0·941	296 32	50 2	151 28	+ 5 55	S.
	1737		395	0·970	298 43	55 51	157 17	+ 7 58	s.
	1738		399	0·269	340 11	350 22	91 48	+14 8	T.
	1739		399	0·332	335 57	354 4	95 30	+15 55	U.
17.	1740	320·468	402	0·889	101 29	278 24	5 57	+ 9 25	P.
	1741		402	0·914	100 34	275 5	2 38	+10 22	p.
	1742		401	0·516	129 17	311 30	39 3	− 7 16	Q.
	1743		400	0·273	202 38	341 25	68 58	−13 24	R.
	1744		396	0·991	296 55	63 12	150 45	+ 6 19	S.
	1745		399	0·440	317 55	4 35	92 8	+13 40	T.
	1746		399	0·504	319 35	8 12	95 45	+16 6	U.
23.	1747	326·500	405	0·465	146 11	324 35	326 34	−14 44	P.
	1748		404	0·444	158 15	329 21	331 20	−18 0	p.
	1749		403	0·315	195 32	345 51	347 50	−16 37	Q.
	1750		403	0·335	188 31	343 20	345 19	−17 31	q.
	1751		401	0·778	278 28	37 13	39 12	− 7 4	R.
	1752		402	0·194	345 50	353 8	5 7	+10 56	S.
	1753		402	0·244	325 49	358 22	0 21	+10 0	T.
	1754		402	0·389	310 56	8 22	10 21	+ 9 55	U.
24.	1755	327·525	404	0·317	168 21	338 34	326 1	−14 18	P.
	1756		404	0·318	154 38	335 2	322 29	−11 41	p.
	1757		404	0·330	186 27	343 51	331 18	−17 12	π.
	1758		403	0·371	231 13	0 1	347 28	−16 40	Q.
	1759		401	0·901	280 10	51 41	39 8	− 6 54	R.
	1760		402	0·369	317 26	7 12	354 39	+11 39	S.
	1761		402	0·442	309 16	12 46	0 13	+10 20	T.
	1762		402	0·591	305 5	23 5	10 28	+10 52	U.
27.	1763	330·505	404	0·542	257 50	19 59	325 10	−14 31	P.
	1764		405	0·489	262 41	17 42	322 53	−10 47	Q.
	1765		402	0·858	300 52	49 23	354 34	+11 59	R.
	1766		402	0·911	298 49	56 10	1 21	+10 44	S.
	1767		402	0·968	299 26	66 11	11 22	+11 48	T.
Dec. 12.	1768	345·530	406	0·855	111 27	307 52	39 55	− 8 59	P.
	1769		406	0·834	109 56	310 1	42 4	− 7 32	p.
	1770		406*a*	0·911	127 37	302 47	34 50	−24 3	Q.
	1771		406*b*	0·442	144 39	346 23	78 26	−18 18	R.
25.	1772	358·538	411	0·936	75 4	312 8	219 41	+17 56	P.
	1773		410	0·981	77 37	302 8	209 41	+16 47	p.
	1774		410	0·590	130 55	348 13	255 46	−22 6	Q.
	1775		410	0·627	129 0	345 9	252 42	−22 15	q.
	1776		407	0·603	250 0	53 52	321 25	−16 52	R.
	1777		408	0·733	252 10	64 21	331 54	−18 23	S.
	1778		409	0·766	257 55	68 10	335 43	−14 46	T.
	1779		409*a*	0·996	289 2	102 52	10 25	+13 24	U.
30.	1780	363·538	414	0·926	84 56	317 21	153 58	+ 6 9	P.
	1781		414	0·861	85 4	325 39	162 16	+ 5 9	p.
	1782		414	0·891	82 34	322 20	158 57	+ 7 45	π.
	1783		413	0·261	140 53	14 1	210 38	−14 6	Q.
	1784		413	0·548	232 3	51 8	247 45	−23 35	R.
	1785		412	0·420	32 57	11 36	208 13	+18 17	S.
	1786		410	0·347	12 35	20 52	217 29	+16 53	T.
	1787		411	0·332	355 36	26 51	223 28	+16 10	U.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1863.									
Jan. 2.	1788	1·600	414	0·511	66° 43′	359° 51′	152° 43′	+ 9° 17′	P.
	1789		414	0·285	59 58	13 22	166 34	+ 5 15	Q.
	1790		414	0·396	62 58	6 57	160 9	+ 7 41	R.
	1791		412*a*	0·558	255 19	60 31	213 43	−11 40	S.
	1792		412*a*	0·454	243 19	51 54	205 6	−15 21	s.
	1793		411	0·741	296 45	71 25	244 37	+16 3	T.
	1794		410	0·688	299 27	66 30	219 42	+16 14	t.
4.	1795	3·538	414	0·244	15 18	25 44	151 26	+10 1	P.
	1796		414	0·268	308 31	41 34	167 16	+ 5 59	Q.
	1797		414	0·219	344 18	32 53	158 35	+ 8 30	R.
	1798		413	0·847	259 4	87 7	212 49	−11 31	S.
	1799		413	0·763	253 47	78 20	204 2	−14 57	s.
	1800		411	0·948	289 17	98 30	224 12	+16 33	T.
7.	1801	6·525	415	0·905	96 9	327 33	50 53	− 8 9	P.
	1802		414	0·630	291 45	68 32	151 52	+10 55	Q.
	1803		414	0·830	278 59	87 32	170 52	+ 6 4	R.
	1804		414	0·673	281 39	73 33	156 53	+ 5 32	S.
8.	1805	7·541	415	0·778	95 28	342 26	51 21	− 7 57	P.
	1806		414	0·762	283 52	81 21	150 16	+ 8 58	Q.
	1807		414	0·936	276 39	102 1	170 56	+ 6 11	R.
	1808		414	0·820	278 20	87 32	156 27	+ 5 32	S.
18.	1809	17·491	418	0·902	63 18	342 20	270 7	+15 57	P.
	1810		418	0·857	70 38	347 11	274 55	+ 8 31	p.
	1811		417	0·498	103 0	14 46	302 33	−13 49	Q.
	1812		417	0·484	96 17	15 2	302 49	−10 25	q.
	1813		416	0·279	126 8	31 18	319 5	−15 41	R.
	1814		416	0·298	117 21	28 51	316 38	−14 17	r.
	1815		415	0·984	257 16	123 29	51 16	− 7 16	S.
	1816	17·527	418	0·897	62 43	343 3	270 19	+16 19	P.
	1817		418	0·854	70 10	346 40	273 56	+ 8 49	p.
	1818		417	0·489	102 59	15 23	302 39	−13 40	Q.
	1819		417	0·472	95 37	15 46	303 2	−10 0	q.
	1820		416	0·269	126 29	31 51	319 7	−15 24	R.
	1821		416	0·285	117 14	29 32	316 48	−13 53	r.
20.	1822	19·497	418	0·654	50 35	10 38	269 58	+16 6	P.
	1823		419	0·775	52 46	0 36	259 56	+19 8	p.
	1824		418	0·551	57 11	15 35	274 55	+ 9 14	π.
	1825		416	0·285	224 37	59 0	318 20	−15 11	Q.
	1826		416	0·244	220 25	56 17	315 37	−14 31	q.
	1827		416	0·329	235 57	63 7	322 27	−13 29	q′.
25.	1828	24·505	420	0·328	71 12	343 49	172 7	+ 6 30	P.
	1829		421	0·983	84 6	331 4	159 22	− 4 29	p.
	1830		422	0·557	125 29	24 16	212 34	−28 7	Q.
	1831		422	0·631	249 10	89 41	277 59	−11 32	R.
	1832		416	0·981	246 27	130 20	318 38	−14 56	S.
	1833		417	0·882	269 15	111 31	299 49	+ 4 54	T.
	1834		418	0·588	298 29	79 28	267 46	+16 10	U.
	1835		419	0·510	309 56	71 0	259 18	+17 24	V.
28.	1836	27·530	423	0·740	56 59	9 35	154 58	+12 4	P.
	1837		420	0·492	54 19	27 16	172 39	+ 6 41	Q.
	1838		420	0·567	58 44	21 40	167 3	+ 6 28	q.
	1839		421	0·626	77 46	15 8	160 31	− 3 38	R.
	1840		422	0·452	254 16	80 43	226 6	− 7 29	S.
	1841		422	0·392	251 22	76 47	222 10	− 8 28	T.
	1842		418	0·949	279 16	122 20	267 43	+16 61	U.
29.	1843	28·527	423	0·574	47 51	24 46	156 1	+12 0	P.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1863.									
Jan. 29.	1844	28·527	420	0·304	33° 39′	42° 25′	153° 40′	+ 6° 36′	Q.
	1845		420	0·380	46 15	36 7	167 22	+ 6 8	q.
	1846		421	0·417	74 15	30 21	161 36	− 3 30	R.
	1847		422	0·657	254 51	96 1	227 16	− 7 5	S.
	1848		422	0·607	252 18	92 15	223 30	− 8 41	T.
Feb. 8.	1849	38·524	423	0·198	96 22	54 14	43 41	−10 37	P.
	1850		423	0·128	111 28	59 1	48 28	−10 54	p.
	1851		421	0·256	112 15	52 53	42 20	−15 20	Q.
	1852		425	0·392	247 57	88 6	77 33	− 8 44	R.
	1853		425	0·445	250 44	91 28	80 55	− 7 43	r.
	1854		425	0·448	234 14	90 36	80 3	−14 58	S.
	1855		426	0·907	243 52	130 38	120 5	−12 42	T.
9.	1856	39·458	427	0·960	50 22	356 31	332 42	+20 53	P.
	1857		427	0·989	89 20	343 24	319 35	−15 37	Q.
	1858		424	0·068	179 43	66 58	43 9	−10 21	R.
	1859		424	0·152	225 39	73 43	49 54	−10 46	r.
	1860		424	0·147	162 45	65 41	41 52	−15 3	ρ.
	1861		425	0·568	248 28	100 41	76 52	− 8 52	S.
	1862		425	0·625	240 8	104 32	80 43	−14 7	s.
	1863		425	0·586	240 23	101 34	77 45	−13 36	σ.
	1864		426	0·978	243 15	144 39	120 50	−12 21	T.
May 6.	1865	125·646	441	0·827	71 24·9	95 55	289 37	− 5 49	P.
	1866		441	0·888	72 8·2	89 3	282 45	− 6 24	p.
	1867		440	0·561	40 54·6	120 48	314 30	+11 7	Q.
	1868		440	0·636	42 21·4	115 24	309 6	+12 23	q.
	1869		440	0·709	44 59·2	109 19	303 1	+12 38	R.
	1870		440	0·624	42 16·2	116 17	309 59	+12 5	r.
	1871		437	0·486	237 4·3	180 31	14 13	− 7 42	S.
	1872		437	0·547	238 7·7	184 29	18 11	− 7 34	s.
	1873		438	0·763	240 18·4	201 15	34 57	− 7 8	T.
	1874		438	0·752	230 43·2	199 42	33 24	−14 16	t.
	1875		438	0·758	233 10·2	200 24	34 6	−12 29	u.
7.	1876	126·562	441	0·691	71 38·3	108 53	289 34	− 5 41	P.
	1877		440	0·408	28 10·2	133 40	314 21	+11 32	Q.
	1878		440	0·478	32 23·3	128 49	309 30	+12 35	q.
	1879		440	0·561	39 6·0	122 10	302 51	+12 13	R.
	1880		440	0·444	31 6·2	131 1	311 42	+11 53	r.
	1881		437	0·652	239 45·9	193 26	14 7	− 7 14	S.
	1882		437	0·717	239 57·1	198 12	18 53	− 7 20	s.
	1883		438	0·887	254 3·1	214 20	35 1	+ 4 43	T.
	1884		438	0·885	241 29·1	214 39	35 20	− 6 23	t.
	1885		439	0·436	270 3·3	176 12	356 53	+ 6 44	v.
	1886		439	0·463	271 57·3	177 28	358 9	+ 8 12	x.
	1887		439	0·461	268 50·5	177 56	358 37	+ 6 50	u.
	1888		439	0·463	267 37·9	178 14	358 55	+ 6 21	w.
	1889		439	0·597	259 4·1	188 12	8 53	+ 4 28	y.
	1890	126·625	441	0·688	71 41·5	109 11	288 58	− 5 42	P.
	1891		440	0·405	28 6·8	133 53	313 40	+11 28	Q.
	1892		440	0·478	32 13·1	128 55	308 42	+12 41	q.
	1893		440	0·557	39 4·3	122 29	302 16	+12 8	R.
	1894		440	0·441	30 57·2	131 18	311 5	+11 49	r.
	1895		437	0·658	239 37·7	193 35	13 22	− 7 20	S.
	1896		437	0·723	239 48·0	198 42	18 29	− 7 28	s.
	1897		438	0·887	253 45·3	214 25	34 12	+ 4 27	T.
	1898		438	0·884	241 21·3	214 36	34 23	− 6 30	t.
	1899		439	0·437	269 33·3	176 26	356 13	+ 6 34	v.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1863.									
May 7.	1900	126·625	439	0·466	271° 28′·8	177° 48′	357° 35′	+ 8° 4′	x.
	1901		439	0·465	268 26·8	178 18	358 5	+ 6 46	u.
	1902		439	0·465	267 7·9	178 31	358 18	+ 6 11	w.
	1903		439	0·547	258 43·2	188 24	8 11	+ 3 35	y.
8.	1904	127·554	441	0·516	72 34·6	122 30	289 7	− 5 35	P.
	1905		441	0·463	70 59·7	125 58	292 35	− 4 40	p.
	1906		441	0·608	75 8·7	116 12	282 49	− 7 26	Π.
	1907		441	0·639	75 17·6	113 59	280 36	− 7 41	π.
	1908		441	0·884	79 30·7	91 29	258 6	−12 26	φ.
	1909		440	0·275	358 40·3	147 35	314 12	+11 31	Q.
	1910		440	0·338	14 46·3	141 19	307 56	+12 18	q.
	1911		440	0·397	23 13·4	136 30	303 7	+12 48	τ.
	1912		440	0·395	25 48·4	135 53	302 30	+11 58	R.
	1913		437	0·972	258 43·4	228 41	35 18	+10 25	T.
	1914		437	0·805	245 40·7	206 57	13 34	− 3 7	t.
	1915		437	0·926	251 37·1	220 45	27 22	+ 2 53	θ.
	1916		437	0·860	246 45·5	212 36	19 13	− 2 0	τ.
	1917		439	0·643	267 4·7	191 12	357 49	+10 3	q.
	1918		439	0·599	271 50·9	187 4	353 41	+11 43	U.
	1919		438*a*	0·508	214 23·4	180 11	346 48	−18 48	S.
	1920		438*a*	0·528	214 25·5	181 28	348 5	−19 25	s.
13.	1921	132·494	443	0·585	48 17·7	124 32	221 4	+ 9 17	P.
	1922		443	0·630	49 8·2	121 16	217 48	+ 9 46	p.
	1923		443	0·626	44 50·7	122 26	218 58	+12 13	Π.
	1924		444	0·592	24 19·2	131 57	228 29	+16 42	Q.
	1925		444	0·579	25 58·1	131 8	227 40	+20 31	q.
	1926		444	0·626	24 39·2	128 51	225 23	+23 11	$\varkappa$.
	1927		444	0·589	28 44·4	129 31	226 3	+19 38	K.
	1928		441	0·450	244 24·1	184 50	281 22	− 4 12	ϱ.
	1929		441	0·492	246 53·2	187 36	284 8	− 3 5	r^1.
	1930		441	0·481	245 45·7	186 52	283 24	− 3 37	r^2.
	1931		441	0·471	246 3·1	186 12	282 44	− 3 29	r^3.
	1932		441	0·468	242 52·9	185 58	282 30	− 4 57	r^4.
	1933		441	0·506	247 4·1	188 30	285 2	− 3 0	R_a.
	1934		441	0·506	242 9·7	188 25	284 57	− 5 28	R_b.
	1935		441	0·485	242 0·6	187 4	283 36	− 5 26	R_c.
	1936		441	0·583	243 58·7	193 43	290 15	− 4 45	S.
	1937		441	0·631	247 26·0	197 14	293 46	− 2 42	Σ_a.
	1938		441	0·612	245 19·7	195 52	292 24	− 4 0	Σ_b.
	1939		441	0·643	246 1·5	198 5	294 37	− 3 35	S′.
	1940		441	0·610	244 6·9	195 39	292 11	− 4 44	S″.
	1941		441	0·608	242 43·3	195 28	292 0	− 5 34	σ'.
	1942		441	0·593	240 10·9	194 17	290 49	− 7 1	σ''.
14.	1943	133·492	443	0·408	38 32·1	138 16	220 40	+ 9 21	P.
	1944		444	0·469	7 43·8	145 6	227 30	+21 3	Q.
	1945		441	0·698	247 8·3	203 19	285 43	− 2 54	R_a.
	1946		441	0·686	246 30·6	202 20	284 44	− 3 21	R_b.
	1947		441	0·638	245 37·6	198 39	281 3	− 3 55	ϱ.
	1948		441	0·664	246 48·7	200 40	283 4	− 3 9	r^1.
	1949		441	0·664	243 41·9	200 36	283 0	− 5 13	r^2.
	1950		441	0·672	243 21·5	201 14	283 38	− 5 28	r^3.
	1951		441	0·680	243 43·1	201 51	284 15	− 5 14	T_1.
	1952		441	0·691	243 44·4	202 43	285 7	− 5 15	T_2.
	1953		441	0·800	246 36·5	212 7	294 31	− 3 11	S_1.
	1954		441	0·774	245 57·7	209 45	292 9	− 3 43	S_2.
	1955		441	0·755	244 22·8	208 4	290 28	− 4 55	Σ.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1863.									
May 14.	1956	133·492	441	0·766	242° 51′·9	208° 59′	291° 23′	− 6° 5′	S^1.
	1957		441	0·775	244 11·4	209 50	292 14	− 5 5	S^2.
23.	1958	142·508	446	0·986	84 40·1	87 25	41 55	−13 24	P_1.
	1959		446	0·986	85 56·0	87 15	41 45	−14 39	P_2.
	1960		446	0·995	84 6·7	83 44	38 14	−12 52	p.
	1961		445	0·959	61 37·6	95 3	49 33	+ 8 50	Q.
	1962		445	0·979	60 21·5	90 18	44 48	+10 24	q′.
	1963		441	0·797	240 1·6	220 5	174 35	− 9 55	T.
	1964		441	0·795	240 54·7	220 0	174 30	− 9 12	t.
	1965		441	0·781	240 20·0	218 37	173 7	− 9 31	t.
	1966		441	0·800	241 30·3	220 27	174 57	− 8 46	u.
	1967		441	0·732	239 16·7	214 14	168 44	− 9 50	S.
	1968		441	0·758	240 19·0	216 32	171 2	− 9 19	s.
	1969	142·608	446	0·992	84 52·7	85 26	38 31	−13 35	P_1.
	1970		446	0·990	86 15·9	86 19	39 24	−14 58	P_2.
	1971		445	0·965	62 31·4	93 46	46 51	+ 8 6	Q.
	1972		445	0·962	62 29·0	111 14	64 19	+ 8 6	q^1.
	1973		445	0·981	61 44·7	89 42	42 47	+ 9 7	q^2.
	1974		445	0·577	60 56·4	133 25	86 30	+ 4 47	K.
	1975		441	0·783	241 5·1	218 58	172 3	− 8 59	T.
	1976		441	0·783	242 8·6	218 59	172 4	− 8 9	t.
	1977		441	0·768	241 28·0	217 36	170 41	− 8 33	t.
	1978		441	0·788	242 41·5	219 30	172 35	− 7 45	u.
	1979		441	0·717	240 25·1	213 9	166 14	− 8 53	S.
24.	1980	143·515	445	0·976	62 58·3	91 49	32 1	+ 8 10	P.
	1981		446	0·869	61 15·7	109 26	49 38	+ 8 16	p.
	1982		447	0·969	56 50·2	94 7	34 19	+13 58	Q.
	1983		447	0·953	53 26·8	97 58	38 10	+16 51	q.
	1984		449	0·980	82 47·1	90 34	30 46	−11 10	R.
	1985		449	0·929	86 11·9	101 1	41 13	−14 0	r.
	1986		449	0·929	87 10·9	101 11	41 23	−14 54	ϱ^1.
	1987		449	0·919	86 3·0	102 32	42 44	−13 45	ϱ^2.
	1988		441*a*	0·178	190 36·9	173 45	113 57	−10 20	S.
	1989		441	0·912	241 44·9	234 14	174 26	− 9 37	T.
	1990		441	0·910	242 27·4	233 58	174 10	− 8 58	r.
25.	1991	144·653	447	0·955	63 23·5	97 43	21 47	+ 7 52	P.
	1992		447	0·946	61 24·3	99 31	23 35	+ 9 37	p.
	1993		445	0·887	61 43·8	108 9	32 13	+ 8 31	Q_1.
	1994		445	0·877	60 59·6	109 21	33 25	+ 9 9	Q_2.
	1995		446	0·704	56 23·6	126 29	50 33	+ 9 59	R.
	1996		446	0·693	57 47·4	127 9	51 13	+ 8 51	r.
	1997		446	0·739	57 38·4	123 28	47 32	+ 9 41	ϱ.
	1998		448	0·938	78 57·8	100 20	24 24	− 6 55	S.
	1999		449	0·884	83 47·5	108 13	32 17	−10 57	s.
	2000		449	0·809	87 17·9	116 47	40 51	−13 2	T.
	2001		449	0·801	89 0·1	117 49	41 53	−14 15	r.
	2002		449	0·591	76 29·4	133 49	57 53	− 3 39	u.
26.	2003	145·629	447	0·866	63 5·5	111 28	21 41	+ 7 25	P.
	2004		447	0·858	60 38·8	112 39	22 52	+ 9 24	p.
	2005		447	0·844	60 48·3	114 7	24 20	+ 9 5	Π.
	2006		447	0·830	61 40·9	115 28	25 41	+ 8 11	π.
	2007		447	0·826	63 36·8	115 42	25 55	+ 6 33	o.
	2008		445	0·765	60 23·6	121 47	32 0	+ 8 21	Q_1.
	2009		445	0·755	59 33·1	122 46	32 59	+ 8 51	Q_2.
	2010		446	0·589	53 47·7	136 22	46 35	+ 9 49	R_1.
	2011		446	0·581	53 30·2	136 58	47 11	+ 9 50	R_2.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1863.					° ′	° ′	° ′	° ′	
May 26.	2012	145·629	446	0·569	53 1·8	137 53	48 6	+ 9 51	r.
	2013		446	0·534	51 39·9	140 27	50 40	+ 9 50	S_1.
	2014		446	0·518	52 27·6	141 20	51 33	+ 9 7	S_2.
	2015		448	0·838	80 8·4	114 13	24 26	− 7 7	T.
	2016		449	0·753	86 10·8	122 45	32 58	−11 6	t.
	2017		449	0·712	90 11·3	126 47	37 0	−13 23	U.
	2018		449	0·702	89 36·4	127 30	37 43	−12 49	u.
	2019		449	0·655	92 23·9	131 34	41 47	−13 49	υ.
	2020		449	0·096	5 42·5	168 35	78 48	+ 3 52	V.
	2021	145·636	447	0·866	63 9·5	111 27	21 34	+ 7 22	P.
	2022		447	0·857	60 43·0	112 46	22 53	+ 9 20	p.
	2023		447	0·842	61 2·9	114 16	24 23	+ 8 52	Π.
	2024		447	0·829	61 40·2	130 20	40 27	+ 6 8	π.
	2025		445	0·766	60 40·6	121 44	31 51	+ 8 9	Q_1.
	2026		445	0·754	59 46·4	122 51	32 58	+ 8 40	Q_2.
	2027		446	0·586	53 41·7	136 36	46 43	+ 9 50	R_1.
	2028		446	0·581	54 26·0	136 50	46 57	+ 9 19	R_2.
	2029		446	0·567	53 1·5	138 2	48 9	+ 9 49	r.
	2030		446	0·533	51 43·8	140 30	50 37	+ 9 47	S_1.
	2031		446	0·517	52 37·8	141 25	51 32	+ 9 0	S_2.
	2032		448	0·838	80 21·5	114 11	24 18	− 7 18	T.
	2033		449	0·754	86 11·6	122 42	32 49	−11 7	t.
	2034		449	0·655	92 37·4	131 39	41 46	−13 57	υ.
	2035		449	0·094	70 3·7	168 38	78 45	+ 3 29	V.
27.	2036	146·562	447	0·735	63 55·7	124 57	21 57	+ 5 42	P.
	2037		447	0·796	61 37·7	119 43	16 43	+ 8 7	p.
	2038		447	0·727	60 15·7	126 0	23 0	+ 8 15	Π.
	2039		447	0·735	60 34·8	125 15	22 15	+ 8 8	π.
	2040		447	0·688	61 31·2	128 59	25 59	+ 6 52	O.
	2041		447	0·716	60 10·0	126 55	23 55	+ 8 10	o.
	2042		445	0·612	59 15·2	134 55	31 55	+ 7 18	Q_1.
	2043		445	0·600	57 57·6	135 54	32 54	+ 7 54	Q_2.
	2044		446	0·413	49 40·6	149 8	46 8	+ 8 17	R.
	2045		446	0·401	44 55·7	150 39	47 39	+ 9 44	r.
	2046		446	0·353	46 51·8	153 1	50 1	+ 7 49	ρ.
	2047		446	0·357	41 54·4	153 36	50 36	+ 9 29	S_1.
	2048		446	0·345	43 43·5	153 56	50 56	+ 8 34	S_2.
	2049		446*a*	0·204	274 52·2	182 29	79 29	+ 3 21	W.
	2050		446*a*	0·205	264 39·8	183 10	80 10	+ 1 23	w.
	2051		446*a*	0·158	280 9·6	179 40	76 40	+ 3 6	ω.
	2052		448	0·697	84 10·5	128 4	25 4	− 8 43	T.
	2053		448	0·592	91 15·4	136 49	33 49	−11 41	t.
	2054		449	0·484	99 51·0	145 27	42 27	−13 39	U.
	2055		449	0·481	97 58·3	145 17	42 17	−12 44	u.
	2056		449	0·556	98 23·2	140 32	37 32	−14 48	υ.
	2057	146·578	447	0·730	63 52·0	125 20	22 6	+ 5 43	P.
	2058		447	0·785	59 2·8	121 32	18 18	+ 7 47	p.
	2059		447	0·725	60 4·7	126 14	23 0	+ 8 21	Π.
	2060		447	0·733	61 23·7	125 21	22 7	+ 7 31	π.
	2061		447	0·683	61 19·4	129 25	26 11	+ 6 57	O.
	2062		447	0·712	60 0·1	127 17	24 3	+ 8 14	o.
	2063		445	0·609	59 10·4	135 9	31 55	+ 7 19	Q_1.
	2064		445	0·599	57 51·5	136 2	32 48	+ 7 57	Q_2.
	2065		446	0·409	48 49·5	149 34	46 20	+ 8 31	R.
	2066		446	0·399	44 28·2	150 50	47 36	+ 9 51	r.
	2067		446	0·354	41 18·0	153 55	50 41	+ 9 34	S_1.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1863.									
May 27.	2068	146·578	446	0·342	43° 5′·9	154° 14′	51° 0′	+ 8° 41′	S_2.
	2069		448	0·695	83 58·8	128 18	25 4	− 8 33	T.
	2070		448	0·589	91 8·4	137 1	33 47	−11 34	t.
	2071		449	0·481	100 0·4	145 42	42 28	−13 38	U.
	2072		449	0·476	98 0·3	145 37	42 23	−12 38	u.
	2073		446*a*	0·208	274 56·1	182 45	79 31	+ 3 28	W.
	2074		446*a*	0·164	279 37·8	180 2	76 48	+ 3 11	w.
28.	2075	147·458	447	0·547	60 34·2	140 11	24 28	+ 5 56	P.
	2076		447	0·559	58 38·4	139 33	23 50	+ 7 9	p.
	2077		447	0·546	54 54·0	140 57	25 14	+ 8 56	Π.
	2078		447	0·562	57 29·0	139 31	23 48	+ 7 50	π.
	2079		447	0·525	55 23·5	142 15	26 32	+ 8 18	O.
	2080		447	0·532	54 12·6	141 57	26 14	+ 9 2	o.
	2081		447	0·539	56 6·3	141 15	25 32	+ 8 10	υ.
	2082		445	0·411	51 2·1	149 57	34 14	+ 8 3	Q_1.
	2083		446	0·203	8 5·7	167 31	51 48	+ 9 37	S_1.
	2084		446	0·184	9 33·0	167 45	52 2	+ 8 30	S_2.
	2085		446	0·173	9 40·8	168 1	52 18	+ 7 55	S_3.
	2086		446	0·203	359 40·5	169 8	53 25	+10 12	Z'_1.
	2087		446	0·189	358 47·4	169 32	53 49	+ 9 27	Z'_2.
	2088		446	0·177	2 33·8	169 5	53 22	+ 8 36	Z'_3.
	2089		446	0·186	3 14·2	168 47	53 4	+ 9 2	Z'_4.
	2090		446	0·250	23 39·0	163 2	47 19	+ 9 57	σ_1.
	2091		446	0·219	24 36·7	164 5	48 22	+ 8 26	σ_2.
	2092		446	0·205	23 21·3	164 49	49 6	+ 8 1	σ_3.
	2093		446	0·218	20 17·8	164 50	49 7	+ 9 1	σ_4.
	2094		449*a*	0·461	263 11·7	199 26	83 43	+ 3 48	R.
	2095		449	0·395	112 21·0	154 5	38 22	−15 21	θ.
	2096		449	0·370	110 9·1	154 55	39 12	−13 45	ρ.
	2097		448	0·505	87 54·3	143 6	27 23	− 8 15	T.
	2098		448	0·515	87 21·2	142 23	26 40	− 8 7	t.
	2099		448	0·336	115 0·8	157 39	41 56	−13 51	t_1.
	2100		448	0·275	118 24·2	161 11	45 28	−12 8	t_2.
	2101	147·630	447	0·581	61 21·4	137 55	19 46	+ 6 0	P.
	2102		447	0·591	59 43·5	137 26	19 17	+ 7 3	p.
	2103		447	0·580	55 58·2	138 42	20 33	+ 9 1	Π.
	2104		447	0·591	57 49·6	137 40	19 31	+ 8 9	π.
	2105		447	0·552	56 24·0	140 29	22 20	+ 8 18	O.
	2106		447	0·566	55 26·3	139 42	21 33	+ 9 4	o.
	2107		445	0·571	57 8·0	139 8	20 59	+ 8 13	υ.
	2108		445	0·446	52 58·1	147 47	29 38	+ 7 56	Q_1.
	2109		446	0·435	51 10·3	148 41	30 32	+ 8 27	Q_2.
	2110		446	0·225	17 20·7	165 18	47 9	+ 9 46	S_1.
	2111		446	0·199	21 45·1	165 29	47 20	+ 7 59	S_2.
	2112		446	0·190	19 18·2	166 12	48 3	+ 7 50	S_3.
	2113		446	0·216	10 7·9	166 58	48 49	+10 7	Σ_1.
	2114		446	0·204	9 55·9	167 20	49 11	+ 9 30	Σ_2.
	2115		446	0·194	14 18·1	166 51	48 42	+ 8 34	Σ_3.
	2116		446	0·202	14 17·2	166 37	48 28	+ 8 58	Σ_4.
	2117		446	0·280	29 52·9	160 46	42 37	+10 4	σ_1.
	2118		446	0·248	31 23·1	161 55	43 46	+ 8 32	σ_2.
	2119		446	0·231	30 13·4	162 52	44 43	+ 8 4	σ_3.
	2120		446	0·246	27 41·8	162 38	44 29	+ 9 7	σ_4.
	2121		449	0·421	264 8·8	197 57	79 48	+15 19	R.
	2122		449	0·433	107 50·2	151 8	32 59	−15 6	θ.
	2123		449	0·394	107 40·1	153 16	35 7	−13 44	ϑ.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1863.									
May 28.	2124	147·630	448	0·539	87° 0′·4	140° 53′	22° 44′	− 8° 13′	T.
	2125		448	0·548	86 25·6	140 13	22 4	− 8 1	τ_1.
	2126		448	0·365	110 58·3	155 30	37 21	−13 46	τ_2.
	2127		448	0·306	112 58·3	158 50	40 41	−12 10	t.
29.	2128	148·455	447	0·383	55 12·2	152 3	22 11	+ 6 3	P.
	2129		447	0·389	55 12·2	152 30	22 38	+ 8 18	p.
	2130		447	0·378	49 21·4	153 19	23 27	+ 8 29	Π.
	2131		447	0·374	46 7·6	153 52	24 0	+ 9 2	π.
	2132		447	0·370	47 29·1	153 51	23 59	+ 8 29	σ.
	2133		445	0·252	35 53·9	161 52	32 0	+ 7 57	Q_1.
	2134		445	0·248	31 53·7	162 40	32 48	+ 8 36	Q_2.
	2135		445	0·222	46 7·6	162 5	32 13	+ 4 59	q.
	2136		446	0·196	337 16·2	174 39	44 47	+10 20	σ_1.
	2137		446	0·163	328 9·0	175 54	46 2	+ 8 9	σ_2.
	2138		446	0·173	324 47·4	176 37	46 45	+ 8 32	σ_3.
	2139		448	0·337	96 6·9	155 13	25 21	− 8 15	T.
	2140		448	0·350	95 10·3	154 23	24 31	− 8 13	t.
	2141		446	0·240	308 8·6	181 31	51 39	+10 26	S_1.
	2142		446	0·209	308 11·4	180 24	50 32	+ 8 57	S_2.
	2143		446	0·189	304 30·4	180 18	50 26	+ 7 37	S_3.
	2144		446	0·232	304 46·5	181 50	51 58	+ 9 34	Σ_1.
	2145		446	0·208	303 43·7	181 8	51 16	+ 8 21	Σ_2.
	2146		446	0·633	261 30·3	212 16	82 24	+ 4 28	R.
	2147	148·663	447	0·340	53 35·6	154 59	22 11	+ 5 50	P.
	2148		447	0·351	46 16·5	155 20	22 32	+ 8 25	p.
	2149		447	0·336	44 27·0	156 26	23 38	+ 8 34	Π.
	2150		447	0·336	42 31·7	156 46	23 58	+ 9 7	π.
	2151		447	0·329	43 57·3	156 52	24 4	+ 8 31	o.
	2152		445	0·216	28 38·7	164 46	31 58	+ 7 56	Q_1.
	2153		445	0·215	24 9·2	165 43	32 55	+ 8 20	Q_2.
	2154		445	0·185	40 36·4	164 44	31 56	+ 4 56	q.
	2155		446	0·208	323 54·8	177 41	44 53	+10 26	σ_1.
	2156		446	0·181	313 14·5	178 55	46 7	+ 8 11	σ_2.
	2157		446	0·190	312 42·1	179 15	46 27	+ 8 33	σ_3.
	2158		448	0·297	99 42·2	158 5	25 17	− 8 18	T.
	2159		448	0·310	98 26·5	157 12	24 24	− 8 17	t.
	2160		446	0·269	299 57·9	184 28	51 40	+10 26	S_1.
	2161		446	0·242	298 44·3	183 32	50 44	+ 9 4	S_2.
	2162		446	0·223	294 47·7	183 18	50 30	+ 7 37	S_3.
	2163		446	0·261	297 25·3	184 35	51 47	+ 9 36	Σ_1.
	2164		446	0·241	295 17·5	184 3	51 15	+ 8 25	Σ_2.
	2165		446	0·674	261 13·8	215 31	82 43	+ 4 37	R.
June 1.	2166	151·500	451	0·931	79 20·6	108 7	295 4	− 4 40	P.
	2167		451	0·946	78 57·5	105 33	292 30	− 4 21	p.
	2168		451	0·942	81 49·9	106 21	293 18	− 7 3	π.
	2169		450	0·752	86 5·3	128 17	315 14	− 8 59	T_1.
	2170		450	0·747	85 49·5	128 45	315 42	− 8 43	T_2.
	2171		450	0·740	86 27·9	129 24	316 21	− 9 7	.
	2172		450	0·784	85 46·6	125 22	312 19	− 9 6	τ_1.
	2173		450	0·768	85 38·7	126 50	313 47	− 8 49	τ_2.
	2174		450	0·756	85 22·6	127 56	314 53	− 8 29	τ_3.
	2175		447	0·231	300 52·9	185 35	12 32	+ 9 7	σ_1.
	2176		447	0·221	298 27·8	185 32	11 29	+ 8 19	σ_2.
	2177		447	0·248	289 56·5	188 2	14 9	+ 7 46	σ_3.
	2178		447	0·344	274 10·6	195 17	22 14	+ 6 11	Σ_1.
	2179		447	0·314	271 55·4	206 42	33 39	+ 8 37	Σ_2.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1863.									
June 1.	2180	151·500	445	0·504	271° 17′·8	205° 23′	32° 20′	+ 7° 56′	Q_1.
	2181		445	0·515	271 56·7	205 58	32 55	+ 8 26	Q_2.
	2182		445	0·475	267 58·9	203 54	30 51	+ 5 55	q.
	2183		448	0·400	234 48·8	198 35	25 32	− 8 8	R.
	2184		446	0·716	266 25·2	221 13	48 10	+ 8 9	S.
	2185		446	0·755	266 4·5	224 32	51 29	+ 8 23	U.
	2186		446	0·771	268 1·1	225 45	52 42	+10 3	V.
2.	2187	152·487	451	0·828	80 29·1	121 43	294 40	− 4 49	P.
	2188		451	0·853	80 0·4	119 5	292 2	− 4 43	p.
	2189		451	0·846	82 34·8	119 57	292 54	− 6 41	π.
	2190		451	0·885	76 56·7	115 14	288 11	− 1 59	v.
	2191		451	0·925	60 4·5	110 35	283 32	+13 31	w.
	2192		450	0·577	90 26·0	143 8	316 5	− 9 10	T_1.
	2193		450	0·580	89 32·0	142 51	315 48	− 8 42	T_2.
	2194		450	0·591	89 3·1	142 1	314 58	− 8 34	t.
	2195		450	0·625	88 39·3	139 32	312 29	− 8 48	t_1.
	2196		450	0·626	89 27·8	139 33	312 30	− 9 19	t_2.
	2197		445	0·683	266 51·1	219 32	32 29	+ 7 52	Q_1.
	2198		445	0·692	267 30·9	220 10	33 7	+ 8 26	Q_2.
	2199		445	0·635	265 15·6	216 4	29 1	+ 6 17	q_1.
	2200		445	0·655	264 9·9	217 37	30 34	+ 5 47	q_2.
	2201		447	0·411	280 26·6	199 18	12 15	+ 9 51	S.
	2202		447	0·434	273 4·5	201 46	14 43	+ 7 27	σ_1.
	2203		447	0·453	271 6·0	201 54	14 51	+ 6 36	σ_2.
	2204		448	0·593	241 30·4	212 45	25 42	− 8 8	R.
	2205		446	0·893	266 0·6	239 45	52 42	+ 9 44	V.
3.	2206	153·487	451	0·672	81 58·8	136 24	295 10	− 4 40	P.
	2207		451	0·702	81 40·1	134 2	292 48	− 4 38	p.
	2208		451	0·705	82 48·7	133 53	292 39	− 4 22	π.
	2209		451	0·805	58 7·1	126 7	284 53	+13 33	w.
	2210		450	0·372	99 48·7	158 16	317 2	− 9 4	T.
	2211		450	0·392	96 15·1	156 36	315 22	− 8 15	t_1.
	2212		450	0·386	96 59·2	157 5	315 51	− 8 23	t_2.
	2213		450	0·432	94 3·1	153 55	312 41	− 8 10	τ_1.
	2214		450	0·441	95 7·6	153 31	312 17	− 8 47	τ_2.
	2215		450	0·453	96 4·6	152 57	311 43	− 9 25	t_3.
	2216		447	0·600	272 50·5	213 39	12 25	+10 13	S.
	2217		447	0·605	273 2·6	213 55	12 41	+10 25	σ.
	2218		447	0·668	266 10·8	219 23	18 9	+ 7 4	s.
	2219		445	0·836	264 52·6	234 18	33 4	+ 7 53	Q_4.
	2220		445	0·841	265 29·2	234 51	33 37	+ 8 26	Q_2.
	2221		445	0·846	262 50·9	235 30	34 16	+ 6 16	q.
4.	2222	154·517	451	0·484	84 50·3	150 42	294 51	− 4 30	P_1.
	2223		451	0·492	85 20·1	150 13	294 22	− 4 49	P_2.
	2224		451	0·522	84 39·7	148 12	292 21	− 4 45	p_1.
	2225		451	0·518	84 1·7	148 26	292 35	− 4 23	p_2.
	2226		451	0·572	90 50·5	145 25	289 34	− 8 40	II.
	2227		451	0·518	87 47·6	148 42	292 51	− 6 19	π_1.
	2228		451	0·516	89 19·5	148 59	293 8	− 7 4	π_2.
	2229		451	0·506	88 28·7	149 34	293 43	− 6 31	π_3.
	2230		451	0·471	89 17·0	151 53	296 2	− 6 26	ρ.
	2231		450	0·254	112 32·6	167 24	311 33	− 8 50	S_1.
	2232		450	0·264	113 46·7	167 7	312 6	− 9 26	S_2.
	2233		450	0·259	117 29·6	167 59	312 8	− 9 59	σ.
	2234		450	0·280	116 57·3	166 55	311 4	−10 41	s.
	2235		450	0·237	111 13·6	168 2	312 11	− 7 59	v_1.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1863.									
June 4.	2236	154·517	450	0·228	113° 56′·0	168° 51′	313° 0′	− 8° 11′	v_2.
	2237		450	0·215	116 35·0	169 48	313 57	− 8 9	v_3.
	2238		450	0·193	127 56·1	172 23	316 2	− 8 50	o_1.
	2239		450	0·194	132 26·1	173 3	317 12	− 9 24	o_2.
	2240		445	0·939	265 47·9	248 27	32 36	+ 9 27	Q_1.
	2241		445	0·944	266 31·2	249 19	33 28	+10 12	Q_2.
	2242		447	0·765	271 55·4	227 45	11 54	+12 16	T_1.
	2243		447	0·761	271 26·2	227 29	11 38	+11 51	T_2.
	2244	154·769	451	0·430	85 52·0	154 24	294 59	− 4 23	P_1.
	2245		451	0·439	86 17·1	153 52	294 27	− 4 39	P_2.
	2246		451	0·467	84 39·7	151 59	292 34	− 4 12	p.
	2247		451	0·492	88 51·9	150 46	291 11	− 6 26	π_1.
	2248		451	0·463	90 29·2	152 45	293 20	− 6 48	π_2.
	2249		451	0·421	90 40·5	155 24	295 59	− 6 16	π_3.
	2250		451	0·524	92 17·3	149 4	289 39	− 8 36	II.
	2251		450	0·213	121 22·2	170 48	311 23	− 8 48	S.
	2252		450	0·191	120 40·7	171 37	312 12	− 7 48	s.
	2253		450	0·160	143 8·2	175 53	316 28	− 8 32	O_1
	2254		450	0·165	147 34·7	176 28	317 3	− 9 3	O_2.
	2255		445	0·962	264 15·3	253 4	33 39	+ 8 8	Q_1.
	2256		445	0·962	265 4·1	253 2	33 37	+ 8 55	Q_2.
6.	2257	156·471	451	0·090	132 16·2	178 11	294 37	− 4 6	P_1.
	2258		451	0·094	133 45·8	178 10	294 36	− 4 17	P_2.
	2259		452	0·358	23 43·0	168 3	284 29	+16 35	R.
	2260		452	0·339	25 28·6	168 19	284 45	+15 20	r.
	2261		452	0·326	27 16·4	168 24	284 50	+14 21	U.
	2262		452	0·319	30 1·9	168 3	284 29	+13 25	u.
	2263		452	0·345	26 22·5	167 50	284 16	+15 24	v.
	2264		450	0·273	221 55·8	194 8	310 34	− 8 43	S.
	2265		450	0·287	219 15·7	194 25	310 51	− 9 48	s.
	2266		450	0·374	232 38·8	201 15	317 41	− 8 31	Q_2.
	2267		450	0·370	230 5·3	200 35	317 1	− 9 16	Q_3.
8.	2268	158·492	453	0·767	65 53·0	133 38	221 24	+ 8 48	P.
	2269		453	0·913	66 26·1	117 34	205 20	+10 0	p.
	2270		452	0·349	310 16·4	195 34	283 20	+16 30	S_1.
	2271		452	0·351	308 47·3	196 3	283 49	+16 15	S_2.
	2272		452	0·341	304 29·2	196 47	284 33	+14 49	T.
	2273		452	0·357	304 15·5	197 31	285 17	+15 25	t.
	2274		452	0·374	303 41·5	198 27	286 13	+16 1	S.
	2275		452	0·351	299 23·3	198 27	286 13	+13 37	u.
	2276		451	0·409	246 25·2	206 36	294 22	− 4 2	R.
	2277		450	0·736	244 29·6	229 9	316 55	− 7 8	O.
	2278		450	0·757	244 47·3	231 14	319 0	− 7 7	o.
	2279	158·522	453	0·759	65 43·3	134 22	221 43	+ 8 57	P.
	2280		453	0·910	66 10·6	118 8	205 29	+10 13	p.
	2281		452	0·356	309 20·3	196 10	283 31	+16 38	S_1.
	2282		452	0·357	307 59·8	196 35	283 56	+16 22	S_2.
	2283		452	0·350	303 38·8	197 25	284 46	+15 0	T.
	2284		452	0·364	303 24·1	198 7	285 28	+15 32	t.
	2285		452	0·381	303 18·8	198 55	286 16	+16 14	s.
	2286		452	0·361	298 40·5	199 9	286 30	+14 8	u.
	2287		451	0·416	246 43·1	207 7	294 28	− 4 0	R.
	2288		450	0·744	244 46·4	230 8	317 29	− 8 58	Q.
	2289		450	0·763	244 58·1	231 51	319 12	− 9 4	o.
9.	2290	159·489	453	0·599	63 27·3	148 4	221 42	+ 8 49	P.
	2291		453	0·788	65 55·5	132 38	206 16	+ 9 30	p.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1863.									
June 9.	2292	159·489	452	0·503	290° 6′·7	210° 0′	283° 38′	+16° 2′	S_1.
	2293		452	0·506	290 42·0	208 54	282 32	+16 24	S_2.
	2294		452	0·513	289 42·1	210 44	284 22	+16 11	s.
	2295		452	0·525	285 56·5	212 23	286 1	+14 48	T.
	2296		452	0·522	287 38·8	211 47	285 25	+15 31	t.
	2297		452	0·529	283 45·1	213 5	286 43	+13 50	U.
	2298		452	0·538	287 53·0	212 43	286 21	+16 5	u.
	2299		452	0·242	286 2·5	213 25	287 3	+15 19	v.
	2300		451	0·608	250 8·4	220 55	294 33	− 4 8	R.
	2301		451	0·582	241 47·3	218 18	291 56	− 8 43	r.
	2302		451	0·602	241 5·3	219 36	292 14	− 9 27	ϱ.
	2303		450	0·875	247 0·7	244 15	317 53	− 9 2	Q.
	2304		450	0·889	246 51·8	245 54	319 32	− 9 19	q.
	2305		450	0·876	248 21·5	244 25	318 3	− 7 52	o.
	2306	159·615	453	0·576	63 16·1	149 50	221 41	+ 8 39	P.
	2307		453	0·770	65 48·0	134 28	206 19	+ 9 26	p.
	2308		452	0·522	288 40·3	211 40	283 31	+15 59	S_1.
	2309		452	0·524	289 13·5	211 38	283 29	+16 17	S_2.
	2310		452	0·531	288 13·5	212 20	284 11	+16 2	s.
	2311		452	0·545	284 36·2	214 3	285 54	+14 39	T.
	2312		452	0·542	286 11·0	213 31	285 22	+15 22	t.
	2313		452	0·547	282 44·4	214 36	286 27	+13 47	U.
	2314		452	0·556	286 15·0	214 25	286 16	+15 48	u.
	2315		452	0·557	284 58·4	214 45	286 36	+15 10	v.
	2316		451	0·627	250 31·1	222 30	294 21	− 4 5	R.
	2317		451	0·600	242 32·3	219 45	291 36	− 8 35	r.
	2318		451	0·622	241 26·9	221 10	293 1	− 9 35	ϱ.
	2319		450	0·888	247 4·1	245 55	317 46	− 9 10	Q.
	2320		450	0·901	246 56·0	247 35	319 26	− 9 26	q.
	2321		450	0·886	248 24·6	245 45	317 36	− 7 57	o.
10.	2322	160·604	483	0·387	56 21·4	163 45	221 34	+ 8 48	P.
	2323		452	0·688	281 8·6	226 2	283 51	+16 3	S.
	2324		452	0·698	280 27·1	226 57	284 46	+15 48	s.
	2325		452	0·692	279 15·0	226 44	284 33	+14 53	T.
	2326		452	0·700	279 10·8	227 20	285 9	+14 59	t.
	2327		452	0·716	277 6·5	229 1	286 50	+13 53	U_1.
	2328		452	0·713	277 45·2	228 39	286 28	+14 17	U_2.
	2329		452	0·708	279 55·0	227 50	285 39	+15 39	u.
	2330		452	0·713	279 14·9	228 25	286 14	+15 19	v.
	2331		451	0·792	252 33·8	236 57	294 46	− 3 59	R.
	2332		450	0·968	248 14·4	259 49	317 38	− 9 22	Q.
11.	2333	161·586	452	0·840	277 23·1	241 32	285 25	+16 9	S.
	2334		452	0·828	277 43·2	240 12	284 5	+16 12	s.
	2335		452	0·856	276 22·3	243 28	287 21	+15 35	T.
	2336		452	0·850	274 38·4	242 59	286 52	+14 1	U.
	2337		451	0·911	254 3·0	251 14	295 7	− 3 45	R.
	2338	161·608	453	0·198	33 37·6	177 48	221 22	+ 8 45	P.
	2339		452	0·838	277 18·0	241 22	284 56	+16 2	S.
	2340		452	0·830	277 35·9	240 29	284 3	+16 8	s.
	2341		452	0·857	276 12·7	243 36	287 10	+15 27	T.
	2342		452	0·851	274 27·2	243 11	286 45	+13 53	U.
	2343		451	0·912	254 10·9	251 23	294 57	− 3 39	R.
13.	2344	163·484	453	0·323	283 37·2	204 59	221 57	+ 8 33	P.
	2345		454	0·398	231 18·4	208 31	225 29	− 9 49	S.
	2346		454	0·423	233 30·9	210 21	227 19	− 9 40	T_1.
	2347		454	0·415	233 53·5	209 56	226 54	− 9 19	T_2.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1863.									
June 13.	2348	163·484	454	0·451	237° 8′·1	212° 35′	229° 33′	− 8° 52′	O.
	2349		454	0·461	237 42·7	213 19	230 17	− 8 52	o.
	2350	163·668	453	0·345	281 53·8	206 35	220 57	+ 8 30	P.
	2351		454	0·415	232 31·2	209 52	224 14	− 9 51	S.
	2352		454	0·442	233 55·5	211 43	226 5	−10 0	T_1.
	2353		454	0·453	235 22·1	212 37	226 59	− 9 41	T_2.
	2354		454	0·474	238 6·8	214 20	282 42	− 8 58	O.
	2355		454	0·483	238 43·0	215 1	229 23	− 8 54	o.
19.	2356	169·677	455*a**	0·846	22 55·9	153 24	82 31	+47 44	P.
	2357		455*a**	0·832	31 40·8	149 5	78 12	+40 55	p.
	2358		455	0·669	100 17·0	153 26	82 33	−10 46	S.
	2359		455	0·646	100 52·4	155 16	84 23	−10 40	s.
	2360		455	0·625	101 20·9	156 54	86 1	−10 31	T.
	2361		485	0·641	101 2·1	155 38	84 45	−10 41	t.
	2362		483*a*	0·620	285 17·1	229 39	158 46	+15 31	O.
20.	2363	170·595	456	0·963	75 10·6	120 16	36 25	+ 7 27	P.
	2364		455	0·450	109 40·3	170 33	86 39	−10 11	S.
	2365		455	0·434	104 21·4	170 36	86 42	− 7 38	s.
	2366		455	0·351	149 30·9	186 16	102 22	−17 0	R.
	2367		455	0·955	262 33·1	266 55	183 1	+ 0 41	O.
	2368		455	0·769	281 20·3	243 16	159 25	+15 36	T.
21.	2369	171·501	456	0·891	75 39·8	132 35	35 50	+ 7 14	P.
	2370	171·512	456	0·887	75 43·6	132 59	36 4	+ 7 11	P.
23.	2371	173·472	456	0·591	74 39·2	161 18	36 35	+ 7 3	P.
	2372		456	0·564	72 44·6	163 19	38 36	+ 7 55	p.
	2373		457	0·680	61 29·4	156 21	31 38	+16 28	S.
	2374		457	0·660	61 29·2	157 53	33 10	+16 3	s.
	2375		457	0·597	60 32·5	162 36	37 53	+15 19	T.
	2376		457	0·658	63 33·6	157 39	32 56	+14 43	t.
	2377	173·725	456	0·547	73 56·4	164 41	36 23	+ 7 12	P.
	2378		456	0·518	71 28·9	166 47	38 29	+ 8 12	p.
	2379		457	0·646	60 15·1	159 23	31 5	+16 38	S.
	2380		457	0·621	59 52·2	161 19	33 1	+16 18	s.
	2381		457	0·548	58 54·3	166 34	38 16	+15 10	T.
	2382		457	0·611	61 51·1	161 38	33 20	+14 57	t.
25.	2383	175·665	457	0·924	58 20·1	133 21	337 32	+25 10	O.
	2384		457	0·508	57 48·0	171 23	15 34	+15 23	Q.
	2385		456	0·146	50 4·1	192 20	36 31	+ 7 8	P.
	2386		456	0·166	52 43·2	191 8	35 19	+ 7 24	p.
	2387		457	0·220	8 49·6	196 5	40 16	+14 41	T.
	2388		457	0·255	23 47·7	191 54	36 5	+15 12	t.
	2389		457	0·299	30 19·2	188 50	33 1	+16 23	R
	2390		457	0·232	12 5·8	195 3	39 14	+15 9	ϱ.
	2391		455	0·741	287 14·9	245 10	89 21	+18 9	V.
	2392		455	0·744	285 41·9	245 40	89 51	+17 5	u.
	2393		455	0·792	286 23·2	249 57	93 8	+18 31	υ.
26.	2394	176·539	456	0·112	312 32·6	204 25	36 12	+ 7 9	P.
	2395		456	0·100	325 28·6	202 55	34 42	+ 7 26	p.
	2396		457*a*	0·864	243 23·1	257 2	88 49	−17 15	T.
	2397		457*a*	0·902	243 52·6	261 56	93 43	−17 52	t.
	2398		457*a*	0·878	242 13·7	258 28	90 15	−18 37	t.
	2399		457*a*	0·234	330 8·2	205 55	37 42	+14 40	S.
	2400		457*a*	0·249	335 21·7	205 4	36 51	+15 56	s.
	2401		457*b*	0·240	336 36·5	204 35	36 22	+15 32	σ.
	2402		457*b*	0·735	63 47·1	154 29	86 16	+17 10	O.
	2403		457*b*	0·890	284 50·9	261 58	93 45	+18 39	Q.

455*a** } are both doubtful spots.
455*a** }

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1863.									
June 27.	2404	177·524	456	0·343	279° 15′·8	220° 31′	38° 20′	+ 7° 6′	P.
	2405		456	0·314	282 27·7	218 35	36 24	+ 7 43	p.
	2406		456	0·294	275 43·2	217 51	35 40	+ 5 28	π.
	2407		457	0·956	246 38·7	271 57	89 46	−17 10	T.
	2408		457	0·989	246 45·6	281 7	98 56	−18 8	t.
	2409		458	0·318	164 56·1	297 32	15 21	−15 33	Q.
	2410		458	0·274	357 55·1	200 20	18 9	+18 25	S.
	2411		458	0·288	6 59·8	197 33	15 22	+18 57	s.
	2412		458	0·288	8 52·8	197 0	16 49	+18 48	σ.
29.	2413	179·576	458	0·709	60 37·3	160 22	315 5	+20 3	O.
	2414		458	0·681	60 52·9	162 31	311 14	+19 14	o_1.
	2415		458	0·682	60 11·5	162 35	310 18	+19 42	o_2.
	2416		458	0·620	109 13·5	167 23	316 6	−11 32	Q.
	2417		456	0·715	273 1·3	248 26	37 9	+ 6 40	P.
	2418		456	0·681	274 55·2	245 39	34 22	+ 7 49	p.
	2419		456	0·680	271 54·3	245 38	34 21	+ 5 46	π.
	2420		457*a*	0·690	287 45·3	244 57	33 40	+16 35	T_1.
	2421		457*a*	0·699	287 11·5	245 46	34 29	+16 22	T_2.
	2422		457*a*	0·719	287 28·8	247 19	36 22	+16 56	t.
	2423		457*a*	0·742	284 37·7	249 44	38 27	+15 17	U.
	2424		457*a*	0·750	285 47·4	250 24	39 7	+15 31	u.
	2425		457*a*	0·755	283 34·0	250 59	39 42	+14 41	V.
	2426		457*a*	0·767	283 17·0	252 6	40 49	+14 39	v.
	2427		457*a*	0·675	288 46·3	243 34	32 17	+16 58	t.
	2428	179·585	458	0·709	60 39·9	160 20	308 55	+20 1	O.
	2429		458	0·680	61 2·2	162 35	311 10	+19 6	o_1.
	2430		458	0·681	60 21·6	162 42	311 17	+19 33	o_2.
	2431		458*a*	0·622	109 12·7	167 18	315 53	−11 33	Q.
	2432		456	0·715	272 49·2	248 26	37 1	+ 6 31	P.
	2433		456	0·680	275 3·3	245 33	34 8	+ 7 54	p.
	2434		456	0·659	272 0·3	244 3	32 38	+ 5 47	π.
	2435		457*a*	0·690	287 36·3	244 58	33 33	+16 29	T_1.
	2436		457*a*	0·699	287 8·9	245 46	34 21	+16 20	T_2.
	2437		457*a*	0·712	287 11·3	246 48	35 23	+16 36	t.
	2438		457*a*	0·740	284 30·0	238 15	26 50	+15 10	U.
	2439		457*a*	0·749	285 49·8	250 9	38 44	+16 16	u.
	2440		457*a*	0·753	283 14·2	250 56	39 31	+14 26	V.
	2441		457*a*	0·766	283 7·8	252 1	40 36	+14 31	v.
	2442		457*a*	0·676	288 40·6	243 39	32 14	+16 55	t.
30.	2443	180·651	458	0·522	52 54·9	176 48	310 16	+19 33	Q.
	2444		458	0·549	53 7·3	175 2	308 30	+20 19	q.
	2445		458	0·726	68 47·6	158 32	292 0	+15 8	O.
	2446		458	0·748	69 38·4	156 33	290 1	+14 50	o.
	2447		457*a*	0·661	278 38·3	244 56	18 24	+ 9 59	R.
	2448		457*a*	0·678	276 19·9	246 23	19 51	+ 8 31	r.
	2449		457*a*	0·636	276 49·7	243 6	16 34	+ 8 32	ρ.
	2450		456	0·866	272 31·6	263 49	37 17	+ 6 18	P.
	2451		456	0·835	274 18·3	260 30	33 58	+ 7 46	p.
	2452		457*a*	0·835	285 14·3	259 41	33 9	+16 50	U.
	2453		457*a*	0·844	284 30·2	260 48	34 16	+16 21	u.
	2454		457*a*	0·889	281 49·4	266 18	39 46	+14 33	V.
	2455		457*a*	0·853	284 34·8	261 48	35 16	+16 32	v.
	2456	180·661	458	0·521	52 32·3	176 55	310 14	+19 43	Q.
	2457		458	0·548	52 52·4	175 9	308 28	+20 25	q.
	2458		458	0·726	68 43·7	158 36	291 55	+15 10	O.
	2459		458	0·748	69 32·8	156 35	289 54	+14 54	o.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1863.									
June 30.	2460	180·661	457*a*	0·663	278° 43′·9	245° 4′	18° 23′	+ 9° 59′	R.
	2461		457*a*	0·681	276 18·9	246 36	19 55	+ 8 31	r.
	2462		457*a*	0·643	276 55·3	243 41	17 0	+ 8 39	ϱ.
	2463		456	0·867	272 48·9	236 59	10 18	+ 5 40	P.
	2464		456	0·836	274 36·2	260 33	33 52	+ 8 0	p.
	2465		457*a*	0·837	285 34·4	259 53	33 12	+17 8	U.
	2466		457*a*	0·846	284 42·5	261 1	34 20	+16 33	u.
	2467		457*a*	0·891	282 0·9	266 34	39 53	+14 44	V.
	2468		457*a*	0·855	284 42·9	261 58	35 17	+16 40	v.
July 1.	2469	181·522	459	0·468	96 43·9	177 26	298 32	− 1 38	O.
	2470		459	0·486	92 53·6	176 2	297 8	+ 0 0	o.
	2471		457	0·820	275 57·3	259 42	20 48	+ 8 47	r.
	2472		457	0·775	276 10·0	255 22	16 28	+ 8 44	ϱ.
	2473		456	0·946	273 24·4	275 47	36 53	+ 6 43	P.
	2474		457	0·961	281 24·3	278 43	39 49	+14 20	V.
	2475		457	0·919	284 55·2	271 13	32 19	+17 19	v.
	2476		457	0·920	285 28·2	271 20	32 26	+17 50	u.
2.	2477	182·501	460	0·729	63 5·5	161 9	268 22	+19 56	O.
	2478		460	0·713	62 44·8	162 33	269 46	+19 50	o.
	2479		459	0·690	87 54·3	162 13	269 26	+ 2 13	Q
	2480		459	0·737	86 18·5	158 22	265 35	+ 3 14	q.
	2481		458	0·273	96 56·2	190 8	297 21	+ 0 34	R.
	2482	182·513	460	0·719	62 45·5	162 2	269 5	+19 58	O.
	2483		460	0·700	62 26·2	163 40	270 43	+19 46	o.
	2484		459	0·677	87 55·8	163 16	270 19	+ 2 15	Q.
	2485		459	0·727	86 12·5	159 16	266 19	+ 3 20	q.
	2486		458	0·254	97 35·8	191 17	298 20	+ 0 35	R.
3.	2487	183·517	460	0·570	57 13·6	175 34	268 23	+19 49	O.
	2488		460	0·567	56 17·0	175 59	268 48	+20 13	o.
	2489		460	0·550	55 56·2	177 11	270 0	+19 54	o.
	2490		459	0·493	88 59·5	173 41	266 30	+25 45	Q.
	2491		459	0·557	86 21·1	172 56	265 45	+ 3 47	q_1.
	2492		459	0·562	86 47·2	172 36	265 25	+ 3 32	q_2.
	2493	183·683	460	0·540	55 35·5	178 6	269 59	+19 49	O.
	2494		460	0·536	54 37·2	178 37	270 30	+20 9	o.
	2495		460	0·518	54 5·0	179 56	271 49	+19 48	o.
	2496		459	0·455	89 25·3	179 52	271 45	+ 2 27	Q.
	2497		459	0·520	86 19·8	175 35	267 28	+ 3 51	q_1.
	2498		459	0·526	86 47·6	175 12	267 5	+ 3 36	q_2.
4.	2499	184·466	460	0·286	91 46·9	191 2	270 23	+ 2 21	Q.
	2500		460	0·643	82 24·5	167 45	247 6	+ 6 37	q.
	2501		460	0·223	342 22·5	211 18	290 39	+15 39	O.
	2502		460	0·219	335 24·9	212 42	292 3	+14 54	o.
	2503		459	0·411	296 46·0	229 26	308 47	+14 13	S.
	2504		459	0·407	297 42·4	229 3	308 24	+14 28	s.
	2505		459	0·429	293 14·6	230 8	309 29	+13 19	T.
	2506		459	0·435	293 25·6	231 27	310 48	+13 31	t.
	2507	184·478	460	0·287	91 26·5	191 13	270 24	+ 2 30	Q.
	2508		460	0·555	80 36·1	174 19	253 30	+ 7 21	q.
	2509		460	0·222	343 19·4	211 18	290 29	+15 43	O.
	2510		460	0·219	336 52·1	212 39	291 50	+15 4	o.
	2511		459	0·408	297 21·9	229 25	308 36	+14 22	S.
	2512		459	0·402	298 8·0	228 56	308 7	+14 29	s.
	2513		459	0·424	293 36·8	230 59	310 10	+13 20	T.
	2514		459	0·431	293 36·1	231 24	310 35	+13 29	t.
5.	2515	185·517	462	0·994	73 9·4	124 7	188 33	+16 18	P.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude. from Node.	Helio-grapical Longitude.	Helio-graphical Latitude.	Spot.
1863.									
July 5.	2516	185·817	462	0·987	74° 24′·2	127° 31′	191° 57′	+15° 8′	R.
	2517		462	0·971	76 4·5	132 20	196 46	+13 33	Q.
	2518		459*a*	0·395	75 33·0	185 52	250 18	+ 8 32	O.
	2519		459*a*	0·307	76 37·8	191 7	255 33	+ 7 8	o.
	2520		459*b*	0·505	120 57·6	182 38	247 4	−12 15	U.
	2521		459*b*	0·460	120 42·5	185 10	249 36	−10 41	u.
	2522		461	0·581	289 1·9	242 47	307 13	+14 14	S.
	2523		461	0·599	287 11·8	244 17	308 43	+13 28	s.
	2524		461	0·634	285 40·4	247 3	311 29	+13 4	T.
	2525		461	0·674	285 57·4	250 4	314 30	+13 48	t.
6.	2526	186·486	463	0·944	74 9·3	138 52	189 34	+15 46	P.
	2527		463	0·928	75 32·5	141 24	192 6	+14 23	R.
	2528		462	0·895	76 24·2	146 8	196 50	+13 25	Q.
	2529		459	0·338	56 23·1	192 40	243 22	+14 3	U.
	2530		459	0·194	62 14·8	199 31	250 13	+ 8 38	O.
	2531		459	0·188	60 40·7	199 59	250 41	+ 8 44	o.
	2532		459	0·179	58 58·5	200 34	251 16	+ 8 46	v.
	2533		459	0·151	60 43·3	201 52	252 34	+ 7 44	W.
	2534		459	0·162	64 55·4	201 0	251 42	+ 7 25	w.
	2535		459	0·081	47 54·5	206 3	256 45	+ 6 39	U.
	2536		459	0·099	50 37·3	205 5	255 47	+ 7 8	u.
	2537		461	0·730	285 6·0	255 43	306 25	+13 42	S_1.
	2538		461	0·725	285 40·6	255 15	305 57	+14 3	S_2.
	2539		461	0·754	284 0·7	257 56	308 38	+13 10	s.
	2540		461	0·789	282 53·7	261 13	311 55	+12 39	T.
	2541		461	0·783	283 8·3	260 39	311 21	+12 47	t.
7.	2542	187·495	463	0·844	73 28·3	153 26	189 5	+15 57	P.
	2543		462	0·771	75 36·8	160 33	196 57	+13 28	Q.
	2544		459	0·215	283 34·5	222 34	258 58	+ 6 28	U.
	2545		459	0·195	284 49·3	221 20	257 44	+ 6 27	u.
	2546		459	0·136	296 36·2	217 29	253 53	+ 7 8	v.
	2547		461	0·865	283 48·4	270 3	306 27	+13 42	S.
	2548		461	0·915	282 11·5	276 36	313 0	+12 33	T.
	2549	187·503	463	0·842	73 40·4	153 41	189 57	+15 55	P.
	2550		462	0·770	75 34·0	160 30	196 46	+13 29	Q.
	2551		459	0·217	282 29·6	222 16	258 32	+ 6 24	U.
	2552		459	0·195	283 42·2	221 15	257 31	+ 6 27	u.
	2553		459	0·137	295 8·1	217 19	253 35	+ 7 7	v
	2554		461	0·866	283 39·6	270 0	306 16	+13 40	S.
	2555		461	0·916	282 5·7	276 28	312 44	+12 37	T.
9.	2556	189·458	463	0·546	68 7·4	181 1	189 33	+15 31	P_1.
	2557		463	0·551	67 13·1	180 49	189 21	+16 6	P_2.
	2558		463	0·525	71 33·1	181 55	190 27	+12 48	p.
	2559		462	0·428	69 8·0	188 25	196 57	+12 41	Q_1.
	2560		462	0·439	68 14·3	187 50	196 22	+13 17	Q_2.
	2561		462	0·447	66 15·6	187 39	196 11	+14 17	Q_3.
	2562		464	0·638	116 44·0	176 20	184 52	−12 54	U.
	2563		464	0·634	116 14·0	176 32	185 4	−12 29	u.
	2564		464	0·664	116 21·4	174 23	182 55	−13 25	v.
	2565		464	0·671	113 35·9	173 12	181 44	−11 54	w.
	2566		459	0·692	278 9·1	256 2	264 34	+ 7 46	T.
	2567		459	0·656	275 51·8	253 15	261 47	+ 6 8	t.
	2568		459	0·637	280 49·8	251 38	260 10	+ 8 50	t.
	2569		459	0·658	279 19·7	253 18	261 50	+ 8 25	O.
	2570		459	0·645	279 6·5	252 21	260 53	+ 8 12	o.
	2571	189·467	463	0·548	66 51·7	180 57	189 22	+15 29	P_1.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1863.									
July 9.	2572	189·467	463	0·553	65° 56′·8	179° 59′	188° 24′	+15° 54′	P_2.
	2573		463	0·527	70 21·0	181 40	190 5	+12 32	p.
	2574		462	0·429	67 49·7	188 13	196 38	+12 37	Q_1.
	2575		462	0·440	66 50·6	187 41	196 6	+13 10	Q_2.
	2576		462	0·451	64 52·1	186 52	195 17	+14 16	Q_3.
	2577		464	0·634	116 27·6	176 15	184 40	−12 52	U.
	2578		464	0·628	115 50·9	176 19	184 44	−12 26	u.
	2579		464	0·661	116 1·8	174 15	182 40	−13 20	v.
	2580		464	0·666	113 14·2	173 10	181 35	−11 51	u.
	2581		459	0·690	279 4·8	256 20	264 45	+ 7 41	T.
	2582		459	0·650	276 46·2	253 43	262 8	+ 6 9	t.
	2583		459	0·655	280 16·7	252 55	261 20	+ 8 32	O.
	2584		459	0·643	280 7·5	252 0	260 25	+ 8 16	o.
10.	2585	190·496	463	0·257	57 57·0	195 26	189 15	+15 6	P_1.
	2586		463	0·356	56 14·7	195 51	189 40	+15 33	P_2.
	2587		463	0·361	55 36·7	195 39	189 28	+15 57	P_3.
	2588		463	0·370	56 23·6	195 1	188 50	+16 0	P_4.
	2589		463	0·364	57 23·8	195 12	189 1	+15 28	P_5.
	2590		463	0·348	52 11·3	197 6	190 55	+16 28	p_1.
	2591		463	0·340	51 58·2	197 31	191 20	+16 16	p_2.
	2592		463	0·325	51 28·1	198 23	192 12	+15 50	π_1.
	2593		463	0·336	54 46·6	197 11	191 0	+15 19	π_2.
	2594		462	0·240	52 28·2	202 22	196 11	+12 31	Q_1.
	2595		462	0·251	51 0·2	202 3	195 52	+13 14	Q_2.
	2596		462	0·267	48 47·4	201 41	195 30	+14 16	Q_3.
	2597		462	0·294	54 32·8	199 22	193 11	+13 58	q.
	2598		464	0·505	123 57·1	187 55	181 44	−11 56	V_1.
	2599		464	0·511	125 15·3	187 36	181 25	−12 53	V_2.
	2600		464	0·510	127 10·6	188 12	182 1	−13 40	v.
	2601		464	0·468	125 2·7	189 59	183 48	−11 19	w.
	2602		464	0·431	131 23·6	194 6	187 55	−12 16	U.
	2603		464	0·447	128 41·8	192 6	185 55	−11 56	u.
	2604		459	0·789	278 12·3	265 20	259 9	+ 7 45	S_1.
	2605		459	0·796	278 24·8	265 59	259 48	+ 7 56	S_2.
	2606		459	0·810	277 56·5	267 21	261 10	+ 7 27	s.
	2607		459	0·855	277 58·9	272 2	265 51	+ 7 38	T.
	2608		459	0·840	277 1·9	270 29	264 18	+ 6 50	t.
	2609		459	0·820	275 38·0	268 24	262 13	+ 5 41	O.
	2610		459	0·778	276 5·8	264 20	258 9	+ 6 6	o.
	2611	190·512	463	0·352	57 1·8	195 48	189 23	+15 3	P_1.
	2612		463	0·351	55 9·4	195 50	189 25	+15 29	P_2.
	2613		463	0·358	54 28·2	195 28	189 3	+15 55	P_3.
	2614		463	0·367	55 31·8	195 5	188 40	+15 58	P_4.
	2615		463	0·360	56 21·7	194 59	188 34	+15 30	P_5.
	2616		463	0·342	51 20·6	197 16	190 51	+16 26	p_1.
	2617		463	0·336	50 58·6	197 38	191 13	+16 21	p_2.
	2618		463	0·322	50 29·3	198 25	192 0	+15 48	π_1.
	2619		463	0·332	53 53·0	197 29	191 4	+15 18	π_2.
	2620		462	0·238	51 1·6	202 43	196 18	+12 25	Q_1.
	2621		462	0·248	49 32·2	202 25	196 0	+13 4	Q_2.
	2622		462	0·265	47 19·5	201 51	195 26	+14 15	Q_3.
	2623		462	0·292	53 17·6	199 32	193 7	+13 57	q.
	2624		464	0·499	123 54·9	188 6	181 41	−11 59	V_1.
	2625		464	0·505	125 12·1	187 35	181 10	−12 51	V_2.
	2626		464	0·505	127 15·3	188 25	182 0	−13 30	v.
	2627		464	0·465	128 4·0	190 45	184 20	−11 15	w.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1863.									
July 10.	2628	190·512	464	0·428	131° 16′·7	194° 14′	187° 49′	−12° 15′	V.
	2629		464	0·440	128 52·4	192 10	185 45	−11 42	u.
	2630		459	0·795	278 14·2	265 43	259 18	+ 7 42	S_1.
	2631		459	0·800	278 33·0	266 8	259 43	+ 7 52	S_2.
	2632		459	0·815	278 2·7	267 33	261 8	+ 7 27	s.
	2633		459	0·858	278 9·9	273 12	265 47	+ 7 36	T.
	2634		459	0·845	277 12·4	270 41	264 16	+ 6 49	t.
	2635		459	0·823	275 38·9	268 36	262 11	+ 5 50	O.
	2636		459	0·782	276 12·7	264 32	258 7	+ 5 59	o.
12.	2637	192·502	463	0·265	349 16·8	218 51	184 13	+19 4	O.
	2638		463	0·288	3 12·3	214 58	180 20	+20 50	o.
	2639		463	0·272	3 51·9	214 48	180 10	+19 55	v_1.
	2640		463	0·269	2 55·2	215 10	180 32	+19 44	v_2.
	2641		463	0·246	324 53·2	224 8	189 30	+15 22	P_1.
	2642		463	0·254	323 4·3	224 48	190 10	+15 26	P_2.
	2643		462	0·303	307 19·5	230 1	195 23	+14 2	Q_1.
	2644		462	0·296	305 6·9	229 58	195 20	+13 14	Q_2.
	2645		462	0·311	312 22·6	229 28	194 50	+15 32	q.
	2646		462	0·253	312 6·1	226 42	192 4	+13 22	R.
	2647		464	0·306	215 50·5	225 5	190 27	−10 37	U.
	2648		464	0·283	204 26·1	221 25	186 47	−10 57	u.
	2649		464	0·282	188 7·2	216 53	182 15	−12 0	V.
	2650		464	0·276	185 44·0	216 11	181 33	−11 49	v.
	2651		459	0·983	279 28·6	294 83	260 15	+ 7 46	T.
	2652	192·511	463	0·263	350 8·0	218 53	184 7	+19 5	O.
	2653		463	0·286	3 53·7	214 36	179 50	+20 47	o.
	2654		463	0·272	4 40·3	214 49	180 3	+19 49	v_1.
	2655		463	0·269	3 29·5	215 26	180 40	+19 46	v_2.
	2656		463	0·244	325 35·2	224 17	189 31	+15 20	P_1.
	2657		463	0·250	323 28·9	224 44	189 58	+13 21	P_2.
	2658		463	0·197	319 38·1	224 24	199 38	+10 58	p.
	2659		462	0·299	307 37·1	229 46	195 0	+13 57	Q_1.
	2660		462	0·291	305 34·1	230 3	195 17	+13 15	Q_2.
	2661		464	0·304	215 11·2	225 8	190 22	−10 36	U.
	2662		464	0·279	303 37·3	221 16	186 30	−10 54	u.
	2663		464	0·278	187 42·9	216 57	182 11	−11 59	V.
	2664		464	0·275	185 8·2	216 0	181 14	−11 50	v.
	2665		459	0·981	279 38·0	294 53	260 7	+ 7 42	T.
14.	2666	194·500	465	0·874	117 37·1	160 4	97 5	−18 45	T.
	2667		462	0·608	292 54·1	253 21	190 22	+15 18	P.
	2668		462	0·590	289 43·9	252 29	189 30	+13 10	p.
	2669		462	0·677	290 20·3	258 58	195 59	+14 43	Q.
	2670		464	0·642	289 13·6	256 21	193 22	+13 33	R.
	2671		463	0·555	298 38·6	248 42	185 43	+17 28	O_1.
	2672		463	0·565	297 6·1	249 40	186 41	+16 52	O_2.
	2673		463	0·536	303 58·4	246 20	183 21	+19 41	o.
	2674		463	0·515	302 18·6	245 21	182 22	+18 18	v_1.
	2675		463	0·519	301 6·2	245 50	182 51	+17 50	v_2.
	2676		463*a*	0·664	251 52·1	255 56	192 57	−10 33	U.
	2677		463*a*	0·548	242 47·4	245 54	182 55	−12 14	V.
15.	2678	195·510	465	0·767	122 51·8	173 16	96 6	−18 43	T.
	2679		463	0·747	290 5·1	265 52	188 42	+15 10	P.
	2680		463	0·749	285 22·6	266 26	189 16	+11 41	p.
	2681		462	0·807	288 58·4	271 32	194 22	+14 56	Q.
	2682		462	0·783	287 33·6	269 18	192 8	+13 36	R.
	2683		463	0·728	294 9·2	263 40	186 30	+17 51	O_1

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1863.									
July 15.	2684	195·510	463	0·725	293° 34′·3	263° 31′	186° 21′	+17° 24′	O_2.
	2685		463	0·680	297 27·0	259 9	181 59	+19 14	o.
	2686		463	0·668	295 23·5	258 33	181 23	+17 40	v_1.
	2687		463	0·676	294 35·7	259 20	182 10	+17 17	v_2.
	2688		464	0·799	256 46·2	268 59	191 49	−10 37	V.
	2689	195·519	465	0·771	122 37·3	173 26	96 0	−18 45	T.
	2690		463	0·745	290 5·3	266 3	188 37	+15 13	P.
	2691		463	0·736	287 1·1	266 19	188 53	+11 29	p.
	2692		462	0·806	288 59·3	271 45	194 19	+14 56	Q.
	2693		462	0·782	287 12·9	269 43	112 17	+13 34	R.
	2694		463	0·719	293 10·8	263 45	186 19	+17 50	O_1.
	2695		463	0·717	292 23·9	263 33	186 7	+17 17	O_2.
	2696		463	0·679	297 31·0	259 20	181 54	+19 16	o.
	2697		463	0·666	295 34·9	258 46	181 20	+17 36	v_1.
	2698		463	0·675	294 28·3	259 34	182 8	+17 18	v_2.
	2699		464	0·801	255 51·1	269 19	191 53	−10 34	V.
17.	2700	197·474	465	0·510	145 10·9	200 2	94 52	−18 45	T.
	2701		463	0·956	289 14·1	293 19	188 9	+15 22	P_1.
	2702		463	0·960	288 43·4	294 5	188 55	+14 52	P_2.
	2703		463	0·980	289 25·5	299 12	194 2	+15 27	Q.
	2704		463	0·951	292 6·6	292 22	187 12	+18 6	O.
	2705		464	0·981	263 19·2	297 28	192 18	−10 4	V.
	2706		464	0·967	262 23·1	293 48	188 38	−10 31	V.
	2707		464*a*	0·134	351 28·6	221 45	116 35	+12 12	S.
	2708		464*a*	0·281	101 28·5	203 47	98 37	+ 2 37	S.
	2709		464*a*	0·262	97 59·0	204 50	99 40	+ 3 37	σ.
	2710	197·483	465	0·509	145 25·3	200 5	94 48	−18 41	T.
	2711		463	0·960	289 16·1	293 28	188 11	+15 20	P_1.
	2712		463	0·964	288 36·7	294 4	188 47	+14 54	P_2.
	2713		463	0·984	289 24·2	299 17	194 0	+15 19	Q.
	2714		463	0·955	291 57·0	292 31	187 14	+18 6	O.
	2715		462	0·984	263 16·0	297 34	192 17	−10 3	U.
	2716		462	0·970	261 29·8	293 46	188 29	−10 29	V.
	2717		464*a*	0·134	349 2·7	221 26	116 9	+12 10	S.
	2718		464*a*	0·279	101 1·8	203 57	98 40	+ 2 43	s.
	2719		465	0·177	168 29·7	217 9	111 52	− 5 6	r.
18.	2720	198·601	465	0·411	172 49·7	215 47	94 38	−18 48	T.
	2721		465	0·337	169 54·5	215 51	94 42	−14 8	t.
	2722		466	0·286	299 53·6	236 19	115 10	+11 28	S_1.
	2723		466	0·291	298 58·1	236 41	115 32	+11 20	S_2.
	2724		466	0·323	297 9·5	238 45	117 36	+11 30	σ.
19.	2725	199·469	465	0·417	200 23·1	228 21	94 53	−18 52	P.
	2726		465	0·412	217 11·2	234 48	101 20	−15 41	p.
	2727		467*a*	0·932	78 18·2	153 0	19 32	+19 35	O.
	2728		466	0·468	291 11·3	249 7	115 39	+11 35	S_1.
	2729		466	0·474	293 2·8	249 18	115 50	+12 31	S_2.
	2730		466	0·503	290 30·8	251 29	118 1	+11 42	s_1.
	2731		466	0·509	289 58·2	251 56	118 8	+11 30	s_2.
	2732		466	0·521	289 56·3	253 45	120 17	+11 38	s_3.
	2733	199·503	465	0·414	200 7·7	228 46	94 49	−18 49	P.
	2734		465	0·488	204 48·9	231 55	97 58	−22 33	π.
	2735		466	0·467	291 44·7	249 38	115 41	+11 36	S_1.
	2736		466	0·472	293 25·6	249 36	115 39	+12 29	S_2.
	2737		466	0·499	291 5·8	251 46	117 49	+11 44	s_1.
	2738		466	0·506	290 32·6	251 54	117 57	+11 35	s_2.
	2739		466	0·519	290 33·4	254 7	120 10	+11 36	s_3.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1863.									
July 24.	2740	204·474	465	0·888	252° 48′·0	285° 2′	80° 35′	−19° 9′	P.
	2741		465	0·908	261 15·8	289 32	85 5	−12 27	p.
	2742		467*a*	0·273	276 9·8	242 28	38 1	+ 4 41	o.
	2743	204·623	465	0·904	253 14·8	287 1	80 27	−19 11	P.
	2744		465	0·922	261 50·4	291 37	85 3	−12 25	p.
	2745		467*a*	0·305	276 30·6	244 31	37 57	+ 4 41	o_1.
25.	2746	205·458	465	0·964	256 19·2	298 59	80 34	−19 16	P.
	2747		467	0·909	87 29·7	161 52	303 27	+11 49	O.
	2748	205·489	465	0·968	256 20·5	299 30	80 39	−19 11	P.
	2749		467	0·908	87 45·3	162 12	303 21	+11 33	O.
26.	2750	206·500	467	0·989	90 21·2	146 39	273 28	+ 8 50	R.
	2751		467*b*	0·949	283 57·2	300 26	67 15	+ 6 54	S.
	2752		467*b*	0·946	283 21·9	299 50	66 39	+ 6 23	s.
	2753		467*b*	0·964	283 15·2	303 24	70 13	+ 6 2	O.
	2754		467	0·760	57 38·0	184 59	311 48	+33 45	π.
	2755		467	0·753	57 1·7	185 56	312 45	+33 53	ρ.
28.	2756	208·460	467	0·845	92 25·6	172 36	271 37	+ 8 48	R.
	2757		467	0·889	98 0·7	167 47	266 48	+ 3 44	P.
	2758		467	0·985	86 15·5	149 36	248 37	+13 48	O.
	2759		467	0·968	88 25·8	154 25	253 26	+11 55	σ.
	2760	208·501	467	0·835	92 29·6	173 8	271 34	+ 8 46	R.
	2761		467	0·878	98 14·8	168 25	266 51	+ 3 40	P.
	2762		467	0·978	86 58·4	150 14	248 40	+13 44	O.
	2763		467	0·960	88 45·3	155 1	253 27	+12 0	o.
29.	2764	209·460	467	0·693	92 54·7	187 26	272 16	+ 8 49	R.
	2765		467	0·749	99 59·5	182 58	267 48	+ 3 34	P.
	2766		468	0·913	87 44·6	165 4	249 54	+13 14	O.
	2767		468	0·865	89 0·4	171 14	256 4	+12 6	o.
	2768	209·507	467	0·691	93 8·5	188 12	272 21	+ 8 48	R.
	2769		467	0·746	100 6·7	183 42	267 51	+ 3 33	P.
	2770		468	0·913	87 45·5	165 48	249 55	+13 14	O.
	2771		468	0·863	89 50·0	171 57	256 6	+12 0	o.
30.	2772	210·460	467	0·509	92 18·0	201 50	272 28	+ 8 55	R.
	2773		467	0·571	102 10·1	197 38	268 16	+ 3 34	P.
	2774		468	0·790	88 27·9	180 6	250 44	+12 43	O_1.
	2775		468	0·796	89 50·9	179 29	250 7	+11 39	O_2.
	2776		468	0·784	89 45·9	180 39	251 17	+11 41	O_3.
	2777		468	0·773	91 12·6	181 35	252 13	+10 32	o.
	2778		468	0·755	89 2·1	183 19	253 57	+12 8	Q_1.
	2779		468	0·752	89 30·0	183 32	254 10	+11 46	Q_2.
	2780		468	0·744	89 56·6	184 15	254 53	+11 24	q.
	2781		468	0·722	90 0·8	186 6	256 44	+11 16	T.
	2782		468	0·737	89 55·5	184 51	255 29	+11 24	t.
	2783	210·465	467	0·516	92 24·2	202 1	272 35	+ 8 54	R.
	2784		467	0·580	102 12·7	197 46	268 20	+ 3 34	P.
	2785		468	0·793	88 29·0	180 17	250 51	+12 41	O_1.
	2786		468	0·800	89 55·1	179 41	250 15	+11 40	O_2.
	2787		468	0·787	89 49·2	180 48	251 22	+11 43	O_3.
	2788		468	0·777	91 23·6	181 50	252 24	+10 34	o.
	2789		468	0·760	89 3·5	183 28	254 2	+12 9	Q_1.
	2790		468	0·757	89 36·5	183 40	254 14	+11 49	Q_2.
	2791		468	0·747	90 4·8	184 23	254 57	+11 27	q.
	2792		468	0·726	90 11·7	186 12	256 46	+11 18	T.
	2793		468	0·741	90 6·1	184 59	255 33	+11 27	t.
31.	2794	211·469	467	0·305	89 20·3	215 47	272 7	+ 8 56	R.
	2795		467	0·370	105 47·8	211 45	268 5	+ 3 29	P.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1863.									
July 31.	2796	211·469	468	0·640	88° 0′·2	193° 43′	250° 3′	+12° 28′	O_1.
	2797		468	0·654	88 41·5	192 36	248 56	+12 7	O_2.
	2798		468	0·630	89 25·9	194 21	250 41	+11 30	O_3.
	2799		468	0·594	89 56·8	196 59	253 19	+10 57	o.
	2800		468	0·629	87 29·6	194 35	250 55	+12 41	p.
	2801		468	0·581	89 5·9	197 59	254 19	+11 21	Q.
	2802		468	0·549	89 44·5	200 9	256 29	+10 46	T_1.
	2803		468	0·548	89 3·5	200 16	256 36	+11 8	T_2.
	2804		468	0·555	89 11·4	199 45	256 5	+11 7	t.
	2805		468	0·563	89 16·3	199 13	255 33	+11 8	q.
	2806	211·505	467	0·299	89 23·6	216 25	272 14	+ 8 59	R.
	2807		467	0·365	105 55·1	212 22	268 11	+ 3 31	P.
	2808		468	0·634	88 9·4	194 22	250 11	+12 27	O_1.
	2809		468	0·650	89 43·6	193 6	248 55	+12 13	O_2.
	2810		468	0·625	89 18·5	195 1	250 50	+11 29	O_3.
	2811		468	0·586	91 3·7	197 45	253 34	+10 58	σ.
	2812		468	0·623	87 27·0	195 0	250 49	+12 40	p.
	2813		468	0·575	89 7·5	198 41	254 30	+11 24	Q.
	2814		468	0·544	89 53·4	200 51	256 40	+10 47	T_1.
	2815		468	0·542	80 0·2	200 20	256 9	+11 3	T_2.
	2816		468	0·549	89 25·1	200 11	256 0	+11 1	t.
	2817		468	0·556	89 25·5	199 41	255 30	+11 12	q.
Aug. 1.	2818	212·493	467	0·086	64 59·0	230 19	272 7	+ 8 47	R.
	2819		467	0·143	116 46·2	226 27	268 5	+ 3 37	P.
	2820		468	0·335	85 38·5	215 14	257 2	+10 38	T_1.
	2821		468	0·341	84 46·5	214 55	256 43	+11 0	T_2.
	2822		468	0·371	87 41·1	212 52	254 40	+10 22	t.
	2823		468	0·399	87 40·2	211 8	252 56	+10 40	τ.
	2824		468	0·450	85 17·9	208 7	249 55	+12 15	Q.
	2825		468	0·433	87 6·8	208 58	250 46	+11 51	σ.
	2826		468	0·390	85 30·7	211 43	253 31	+11 24	q.
	2827	212·503	467	0·080	63 4·8	231 31	272 11	+ 8 45	R.
	2828		467	0·134	116 35·8	226 29	268 9	+ 3 39	P.
	2829		468	0·332	85 23·7	215 20	257 0	+10 37	T_1.
	2830		468	0·333	84 12·3	215 19	256 59	+11 1	T_2.
	2831		468	0·365	87 24·5	212 55	254 35	+10 17	t.
	2832		468	0·391	87 26·8	210 59	252 39	+10 35	τ.
	2833		468	0·443	85 4·9	208 12	249 52	+12 18	O.
	2834		468	0·428	86 41·3	209 1	250 41	+11 52	o.
	2835		468	0·385	84 56·6	211 57	253 37	+11 28	q.
3.	2836	214·669	467	0·416	290 11·2	260 56	271 52	+ 8 58	R.
	2837		467	0·365	275 10·6	257 36	268 32	+ 3 14	P.
	2838		468	0·190	310 11·3	246 12	257 8	+11 8	T.
	2839		468	0·168	307 31·4	245 14	256 10	+10 9	t.
	2840		468	0·142	359 59·7	238 7	249 3	+14 1	O.
	2841		469	0·916	97 13·2	169 53	180 49	+ 6 38	S.
	2842		469	0·904	96 53·6	171 32	182 28	+ 7 2	s.
	2843		469	0·938	94 20·2	208 31	219 27	+ 5 36	Σ.
	2844		469	0·922	94 43·5	168 50	179 46	+ 8 52	σ.
	2845		469	0·935	95 13·1	166 49	177 45	+ 8 18	π.
	2846		469	0·977	93 51·6	158 19	169 15	+ 9 3	V.
	2847		469	0·968	93 18·9	160 21	171 17	+ 9 46	v.
	2848		469	0·967	92 23·4	160 34	171 30	+10 38	U.
4.	2849	215·465	467	0·576	288 45·0	272 26	272 5	+ 8 48	R.
	2850		467	0·535	277 39·8	269 19	268 58	+ 2 47	P.
	2851		468	0·368	298 21·8	258 15	257 54	+11 35	T.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1863.									
Aug. 4.	2852	215·465	468	0·513	280° 5′·7	267° 59′	267° 38′	+ 4° 18′	p_1.
	2853		468	0·506	279 29·3	267 30	267 9	+ 3 57	p_2.
	2854		469	0·823	98 35·1	181 36	181 15	+ 6 22	S.
	2855		469	0·805	97 44·6	183 27	183 6	+ 7 9	s.
	2856		469	0·852	96 7·2	178 30	178 9	+ 8 18	Σ.
	2857		469	0·832	95 45·7	180 39	180 18	+ 8 40	σ.
	2858		469	0·903	93 20·5	172 18	171 57	+10 32	U.
	2859		469	0·897	94 2·0	173 1	172 40	+ 9 56	u.
	2860		469	0·897	96 12·6	173 10	172 49	+ 8 0	V.
	2861		469	0·902	95 8·2	172 25	172 4	+ 8 55	v.
5.	2862	216·576	467	0·761	289 15·5	287 58	271 51	+ 9 6	R.
	2863		467	0·734	281 5·9	285 21	269 14	+ 3 9	P.
	2864		467	0·713	282 53·4	283 41	267 34	+ 4 35	p.
	2865		468	0·590	294 47·3	274 12	258 5	+12 10	T.
	2866		468	0·572	296 10·5	272 52	256 45	+12 49	t.
	2867		468	0·572	290 28·4	273 6	256 59	+ 9 17	τ.
	2868		468	0·574	292 20·7	273 13	257 6	+10 39	π.
	2869		468	0·552	293 33·0	271 38	255 31	+11 12	t.
	2870		468	0·545	292 14·4	271 12	255 5	+10 26	θ.
	2871		469	0·766	95 31·4	188 4	171 57	+ 9 21	U_1.
	2872		469	0·769	94 57·5	187 46	171 39	+ 9 47	U_2.
	2873		469	0·768	93 55·6	187 50	171 43	+10 34	u.
	2874		469	0·753	93 22·7	189 15	173 8	+10 58	V.
	2875		470	0·674	96 21·8	195 42	179 35	+ 8 44	Σ.
	2876		470	0·664	96 21·1	196 29	180 22	+ 8 44	σ.
	2877		470	0·674	98 14·1	195 43	179 36	+ 7 28	x.
	2878		470	0·667	98 12·2	196 17	180 10	+ 7 30	y.
	2879		469	0·646	99 11·0	197 54	181 47	+ 6 53	S_1.
	2880		469	0·658	99 40·1	197 2	180 55	+ 6 33	S_2.
	2881		469	0·624	98 25·7	199 30	183 23	+ 7 24	s.
	2882	216·583	467	0·764	289 17·4	287 58	271 45	+ 9 3	R.
	2883		467	0·735	281 5·8	285 30	269 17	+ 3 11	P.
	2884		467	0·714	282 49·5	283 43	267 30	+ 4 38	p.
	2885		468	0·591	294 43·0	274 25	258 12	+12 11	T.
	2886		468	0·572	296 4·1	272 47	256 34	+12 47	t.
	2887		468	0·573	292 42·7	273 8	256 55	+ 9 20	τ.
	2888		468	0·574	290 8·9	273 15	257 2	+10 35	π.
	2889		468	0·554	293 24·8	271 49	255 36	+11 11	t.
	2890		468	0·548	291 46·8	271 12	254 59	+10 25	θ.
	2891		469	0·767	95 25·9	188 9	171 56	+ 9 22	U_1.
	2892		469	0·769	94 3·8	187 53	171 40	+ 9 50	U_2.
	2893		470	0·675	96 28·3	195 46	179 33	+ 8 43	Σ.
	2894		470	0·665	96 28·5	196 37	180 24	+ 8 45	σ.
	2895		470	0·674	97 51·0	195 48	179 35	+ 7 25	x.
	2896		470	0·669	97 43·4	196 25	180 12	+ 7 31	y.
	2897		469	0·646	99 12·2	197 59	181 46	+ 6 53	S_1.
	2898		469	0·658	99 47·6	197 10	180 57	+ 6 31	S_2.
	2899		469	0·624	98 35·7	199 35	183 22	+ 7 22	s.
	2900		469	0·739	95 22·0	190 25	174 12	+ 9 28	V.
	2901		469	0·546	85 3·0	205 48	189 35	+14 40	Q.
	2902		469	0·589	80 13·7	206 56	190 43	+17 5	q.
7.	2903	218·458	467	0·967	291 1·3	315 53	273 5	+ 9 4	R.
	2904		467	0·962	284 7·9	314 4	271 16	+ 2 34	P.
	2905		468	0·901	292 18·2	304 44	261 56	+10 51	T.
	2906		468	0·882	292 56·8	302 19	259 31	+11 28	t.
	2907		468	0·872	293 50·1	301 10	258 22	+12 16	τ.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1863.									
Aug. 7.	2908	218·458	468	0·884	295° 49′·3	302° 40′	259° 52′	+14° 1′	t.
	2909		468	0·856	293 1·2	299 14	256 26	+11 35	θ.
	2910		469	0·412	91 51·7	215 55	173 7	+10 24	U_1.
	2911		469	0·404	91 6·7	216 27	173 39	+10 38	U_2.
	2912		469	0·389	89 51·1	217 29	174 41	+10 58	u.
	2913		469	0·402	93 47·9	216 27	173 39	+ 9 33	v.
	2914		470	0·280	92 50·1	223 58	181 10	+ 8 56	Σ_1.
	2915		470	0·272	92 19·9	224 26	181 38	+ 9 1	Σ_2.
	2916		470	0·241	95 18·9	226 10	183 22	+ 8 1	x_1.
	2917		470	0·247	94 11·0	225 51	183 3	+ 8 20	x_2.
	2918		470	0·234	94 38·8	226 35	183 47	+ 8 7	y_1.
	2919		470	0·241	93 4·6	226 14	183 26	+ 8 33	y_2.
	2920		469	0·250	95 52·0	225 37	182 49	+ 7 56	ζ.
	2921		469	0·260	96 35·7	225 1	182 13	+ 7 48	ξ.
	2922		469	0·272	97 29·6	224 19	181 31	+ 7 37	μ.
	2923		469	0·245	98 33·1	225 53	183 5	+ 7 15	S_1.
	2924		469	0·230	97 8·3	226 48	184 0	+ 7 31	S_2.
	2925		469	0·350	106 2·9	219 35	176 47	+ 4 56	s.
	2926		469	0·241	75 45·1	227 30	184 42	+12 30	Q.
	2927	218·479	467	0·970	290 58·7	316 7	273 1	+ 9 6	R.
	2928		467	0·964	284 6·7	314 21	271 15	+ 2 37	P.
	2929		468	0·909	292 12·3	304 55	261 49	+10 49	T.
	2930		468	0·890	292 49·0	302 36	259 30	+11 25	t.
	2931		468	0·880	293 44·2	301 26	258 20	+12 13	τ.
	2932		468	0·890	295 47·9	303 0	259 54	+13 59	t.
	2933		468	0·861	292 53·7	299 35	256 29	+11 33	θ.
	2934		469	0·398	91 48·6	216 6	173 0	+10 22	U_1.
	2935		469	0·393	90 57·5	216 38	173 32	+10 37	U_2.
	2936		469	0·381	89 24·3	217 45	174 39	+10 57	u_1.
	2937		469	0·374	89 43·3	217 28	174 22	+10 49	u_2.
	2938		469	0·387	93 49·2	216 47	173 41	+ 9 31	v.
	2939		470	0·265	92 2·1	224 5	180 59	+ 8 53	Σ_1.
	2940		470	0·257	91 48·7	224 40	181 34	+ 8 58	Σ_2.
	2941		470	0·237	95 41·2	226 23	183 17	+ 8 0	x_1.
	2942		470	0·234	94 7·8	226 8	183 2	+ 8 16	x_2.
	2943		470	0·228	95 8·7	226 51	183 45	+ 8 10	y_1.
	2944		470	0·227	92 43·6	226 36	183 30	+ 8 30	y_2.
	2945		469	0·223	98 14·7	226 15	183 9	+ 7 11	S_1.
	2946		469	0·214	97 49·0	227 4	183 58	+ 7 33	S_2.
	2947		469	0·243	96 51·9	225 50	182 44	+ 7 53	ζ.
	2948		469	0·256	97 30·4	225 15	182 9	+ 7 49	ξ.
	2949		469	0·266	98 52·0	224 50	181 44	+ 7 33	μ_1.
	2950		469	0·269	97 41·8	224 37	181 31	+ 7 40	μ_2.
	2951		469	0·333	106 45·2	219 46	176 40	+ 4 50	s_1.
	2952		469	0·348	107 53·1	219 17	176 11	+ 3 51	s_2.
	2953		469	0·470	51 20·5	221 4	177 58	+27 36	V.
	2954		469	0·227	73 46·9	228 26	185 20	+12 28	Q.
8.	2955	219·583	470	0·199	82 35·8	230 20	171 34	+10 19	U_1.
	2956		470	0·202	77 51·9	230 30	171 44	+11 17	U_2
	2957		470	0·192	85 6·8	230 33	171 47	+ 9 44	v_1.
	2958		470	0·197	86 24·7	230 12	171 26	+ 9 35	v_2.
	2959		470	0·174	73 16·8	232 21	173 35	+11 20	u_1.
	2960		470	0·150	74 22·9	233 33	174 47	+10 29	u_2.
	2961		469	0·065	55 29·9	238 38	179 52	+ 9 7	Σ_1.
	2962		469	0·058	53 52·6	238 58	180 12	+ 8 54	Σ_2.
	2963		469	0·041	28 56·8	240 31	181 45	+ 8 37	x.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude. from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1863.									
Aug. 8.	2964	219·583	469	0·034	1° 52′·3	241° 10′	182° 24′	+ 8° 18′	y.
	2965		469	0·027	327 54·7	242 16	183 30	+ 7 37	S_1.
	2966		469	0·028	313 29·2	242 33	183 47	+ 7 9	S_2.
	2967		468	0·952	293 42·3	313 58	255 12	+11 27	θ.
	2968		468	0·976	292 46·5	319 9	260 23	+10 13	T.
	2969		471	0·958	112 15·5	168 54	110 8	− 6 18	O_1.
	2970		471	0·959	112 38·4	168 52	110 6	− 6 40	O_2.
	2971	219·614	470	0·194	82 47·2	230 42	171 30	+10 17	U_1.
	2972		470	0·187	84 58·1	231 1	171 49	+ 9 45	v_1.
	2973		470	0·192	86 4·8	230 32	171 20	+ 9 32	v_2.
	2974		470	0·172	73 46·8	232 39	173 27	+11 24	u_1.
	2975		470	0·145	75 3·5	233 58	174 46	+10 36	u_2.
	2976		469	0·060	52 46·9	238 53	179 41	+ 9 13	Σ_1.
	2977		469	0·054	50 26·7	239 31	180 19	+ 8 59	Σ_2.
	2978		468	0·951	294 10·3	314 23	255 11	+11 25	θ.
	2979		468	0·984	293 43·1	319 17	260 5	+10 21	T.
	2980		471	0·956	112 1·9	169 25	110 13	− 6 20	O_1.
	2981		471	0·956	112 38·5	169 19	110 7	− 6 39	O_2.
10.	2982	221·482	473	0·983	100 39·3	163 28	77 46	+ 4 53	P.
	2983		472	0·930	117 31·4	176 26	90 44	− 9 39	Q.
	2984		472	0·922	118 51·3	177 57	92 15	−10 36	q.
	2985		472	0·926	120 3·5	177 28	91 46	−11 51	K.
	2986		472	0·957	118 1·2	171 45	86 3	−11 0	r_1.
	2987		472	0·957	118 40·7	172 0	86 18	−11 36	r_2.
	2988		472	0·936	127 28·3	177 39	91 57	−18 53	R.
	2989		471	0·731	118 44·6	196 48	111 6	− 6 57	O.
	2990		471	0·790	119 3·4	195 5	109 23	− 7 23	o_1.
	2991		471	0·793	117 37·7	194 52	109 10	− 7 11	o_2.
	2992		470	0·248	298 26·9	257 26	171 44	+10 33	U_1.
	2993		470	0·258	295 30·7	257 6	171 24	+10 58	U_2.
	2994		470	0·328	283 59·6	257 36	171 54	+ 9 58	v.
	2995		469	0·385	293 18·1	265 30	179 48	+ 9 17	Σ_1.
	2996		469	0·386	291 26·9	266 23	180 41	+ 8 54	Σ_2.
	2997		469	0·374	292 15·4	265 13	179 31	+ 8 12	σ.
	2998		469	0·392	288 15·7	272 11	186 29	+ 6 11	S.
	2999		469	0·449	287 40·8	283 45	198 3	+ 6 48	s.
	3000	221·597	473	0·978	101 4·9	165 13	77 53	+ 4 47	P.
	3001		472	0·918	117 57·7	178 11	90 51	− 9 44	Q.
	3002		472	0·906	119 5·6	179 37	92 17	−10 40	q.
	3003		472	0·914	120 33·3	179 6	91 46	−11 47	K.
	3004		472	0·949	110 37·7	173 35	86 15	−11 3	r.
	3005		472	0·925	128 7·2	179 1	91 41	−18 56	R.
	3006		471	0·707	119 31·9	198 37	111 17	− 6 55	O.
	3007		471	0·769	119 40·3	196 45	109 25	− 7 27	o_1.
	3008		471	0·777	118 14·7	196 31	109 11	− 7 16	o_2.
	3009		470	0·291	294 45·9	258 59	171 39	+10 35	U_1.
	3010		470	0·284	296 57·0	258 41	171 21	+11 0	U_2.
	3011		470	0·359	283 59·1	259 18	171 58	+10 5	v.
	3012		469	0·415	292 59·2	266 53	179 33	+ 9 14	Σ_1.
	3013		469	0·416	291 19·3	268 4	180 44	+ 8 55	Σ_2.
	3014		469	0·406	292 1·3	266 46	179 26	+ 8 11	σ.
	3015		469	0·421	288 10·0	273 54	186 34	+ 5 59	S.
11.	3016	222·479	473	0·930	86 28·3	174 51	75 0	+19 24	Π.
	3017		473	0·920	102 7·4	176 47	76 56	+ 5 1	P_1.
	3018		473	0·912	102 47·7	178 6	78 15	+ 4 31	P_2.
	3019		472	0·827	121 22·2	190 35	90 44	− 9 39	Q.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1863.									
Aug. 11.	3020	222·479	472	0·811	122° 37′·7	192° 10′	92° 19′	−10° 33′	q.
	3021		472	0·813	124 0·4	191 41	91 50	−11 40	K.
	3022		472	0·873	122 4·2	186 2	86 11	−11 14	r.
	3023		472	0·845	131 54·0	191 50	91 59	−18 46	R.
	3024		471	0·569	125 15·0	212 2	112 11	− 7 0	O_1.
	3025		471	0·584	125 28·6	211 45	111 54	− 7 11	O_2.
	3026		471	0·642	124 36·8	209 28	109 37	− 7 32	o.
	3027		470	0·622	125 49·9	271 19	171 28	+10 39	U_1.
	3028		470	0·471	291 11·9	271 4	171 13	+10 57	U_2.
	3029		469	0·583	290 36·6	279 38	179 47	+ 9 18	Σ_1.
	3030		469	0·580	291 26·2	280 22	180 31	+ 8 59	Σ_2.
	3031		469	0·561	284 19·4	279 47	179 56	+ 2 21	v.
	3032	222·492	473	0·931	86 30·7	174 48	74 46	+19 28.	Π.
	3033		473	0·921	101 51·4	176 53	76 51	+ 5 2	P_1.
	3034		473	0·912	102 44·1	178 21	78 19	+ 4 36	P_2.
	3035		472	0·827	121 20·6	190 58	90 56	− 9 40	Q.
	3036		472	0·812	122 38·7	192 19	92 17	−10 38	q.
	3037		472	0·811	123 56·1	191 50	91 48	−11 43	K.
	3038		472	0·875	122 38·1	186 14	86 12	−11 17	r.
	3039		472	0·843	132 7·8	192 5	92 3	−18 47	R.
	3040		471	0·559	125 21·4	212 12	112 10	− 6 59	O_1.
	3041		471	0·579	125 44·7	212 1	111 59	− 7 7	O_2.
	3042		471	0·638	124 43·3	209 41	109 39	− 7 39	o_1.
	3043		471	0·619	125 48·1	209 52	109 50	− 7 42	o_2.
	3044		470	0·471	291 27·8	271 35	171 33	+10 44	U_1.
	3045		470	0·466	292 28·8	271 16	171 14	+10 59	U_2.
	3046		469	0·589	290 35·5	279 46	179 44	+ 9 18	Σ_1.
	3047		469	0·583	291 37·1	280 29	180 27	+ 9 2	Σ_2.
	3048		469	0·564	284 24·5	280 5	180 3	+ 2 11	v.
	3049		469*a*	0·230	41 20·8	237 46	137 44	+18 16	N.
	3050		469*a*	0·197	38 84·1	239 9	139 7	+16 49	n.
12.	3051	223·494	473	0·815	86 34·9	189 27	75 13	+19 23	Π.
	3052		473	0·864	85 29·5	185 3	70 49	+20 13	π.
	3053		473	0·808	103 1·9	191 13	76 59	+ 5 59	P_1.
	3054		473	0·803	103 47·8	191 16	77 2	+ 5 10	P_2.
	3055		473	0·794	104 36·1	191 25	77 11	+ 4 58	P_3.
	3056		472	0·687	127 9·0	205 21	91 7	− 9 42	Q.
	3057		472	0·657	128 57·9	207 5	92 51	−10 39	q.
	3058		472	0·656	131 3·3	205 58	91 44	−11 50	K.
	3059		472	0·738	127 13·3	200 33	86 19	−11 11	r.
	3060		471	0·376	139 24·6	227 15	113 1	− 7 1	O.
	3061		472	0·724	139 20·6	208 31	94 17	−18 44	R.
	3062		471	0·469	134 31·6	223 54	109 40	− 7 38	o_1.
	3063		471	0·441	135 37·6	224 1	109 47	− 7 49	o_2.
	3064		469	0·670	290 58·2	286 36	172 22	+10 43	U.
	3065		469	0·713	292 0·8	294 33	180 19	+ 9 33	Σ.
	3066		470	0·243	344 31·0	252 16	138 2	+18 27	N.
	3067		470	0·250	331 3·8	254 3	139 49	+16 59	n.
	3068	223·510	473	0·814	86 45·1	189 42	75 21	+19 29	Π.
	3069		473	0·863	85 28·5	185 4	70 43	+20 17	π.
	3070		473	0·804	103 0·3	191 19	76 58	+ 5 54	P_1.
	3071		473	0·800	103 51·9	191 34	77 13	+ 5 9	P_2.
	3072		473	0·791	104 41·1	191 40	77 19	+ 4 52	P_3.
	3073		472	0·683	127 20·8	205 23	91 2	− 9 51	Q.
	3074		472	0·655	129 13·7	207 16	92 55	−10 42	q.
	3075		472	0·654	131 19·5	206 4	91 43	−11 55	K.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1863.									
Aug. 12.	3076	223·510	472	0·737	127° 16′·4	200° 33′	86° 12′	−11° 19′	r.
	3077		471	0·374	139 34·5	227 30	113 9	− 7 2	O.
	3078		472	0·722	139 34·9	208 36	94 15	−18 45	R.
	3079		471	0·467	134 44·4	224 10	109 49	− 7 35	o_1.
	3080		471	0·438	135 45·0	224 12	109 51	− 7 46	o_2.
	3081		471	0·671	290 54·5	286 52	172 31	+10 40	U.
	3082		469	0·714	292 1·6	294 45	180 24	+ 9 39	Σ.
	3083		470	0·241	344 2·0	252 30	138 9	+18 22	N.
	3084		470	0·249	330 42·2	254 18	139 57	+17 4	n.
14.	3085	225·590	473	0·482	79 34·4	219 28	75 30	+19 28	Π.
	3086		473	0·589	79 35·6	214 30	70 32	+20 22	π.
	3087		473	0·453	107 7·1	220 57	76 59	+ 5 39	P_1.
	3088		473	0·449	108 33·3	221 17	77 19	+ 4 53	P_2.
	3089		473	0·438	110 3·2	221 23	77 25	+ 4 22	P_3.
	3090		473	0·387	156 14·4	235 11	91 13	−10 0	Q.
	3091		473	0·345	160 6·8	236 48	92 50	−10 52	q.
	3092		473	0·342	164 16·2	235 46	91 48	−12 1	K.
	3093		472	0·388	160 19·1	230 11	86 13	−11 36	r.
	3094		472	0·476	168 8·4	239 0	95 2	−18 49	R.
	3095		471	0·221	204 26·5	253 51	109 53	− 7 46	o_1.
	3096		471	0·235	203 1·3	253 57	109 59	− 7 59	o_2.
	3097		471	0·637	303 20·0	284 5	140 7	+17 11	n.
	3098		470	0·954	293 0·5	318 5	174 7	+10 51	U.
	3099		470	0·945	292 2·5	317 39	173 41	+10 31	u.
15.	3100	226·458	473	0·307	63 38·9	232 36	76 19	+19 24	Π.
	3101		473	0·427	69 40·7	227 17	71 0	+20 25	π.
	3102		473	0·241	111 23·9	233 52	77 35	+ 5 17	P_1.
	3103		473	0·241	114 59·0	234 2	77 45	+ 4 25	P_2.
	3104		473	0·232	117 1·5	234 37	78 20	+ 4 3	P_3.
	3105		474	0·952	123 5·8	178 21	22 4	−13 48	S.
	3106		474	0·985	124 2·9	170 34	14 17	−16 13	s.
	3107		474	0·606	138 25·0	216 10	59 53	−13 8	Σ.
	3108		474	0·324	201 14·4	261 58	105 41	−12 0	Q.
	3109		474	0·364	210 51·6	253 13	96 56	−13 52	K.
	3110		472	0·425	194 0·0	246 49	90 32	−18 19	R.
	3111		471	0·409	254 20·7	268 9	111 52	− 6 7	O.
	3112		471	0·339	247 41·0	266 19	110 2	− 7 0	o.
	3113	226·507	473	0·306	63 41·1	233 12	76 13	+19 28	Π.
	3114		473	0·425	69 28·3	228 3	71 4	+20 17	π.
	3115		473	0·241	111 49·7	234 27	77 28	+ 5 19	P_1.
	3116		473	0·240	114 53·4	234 54	77 55	+ 4 23	P_2.
	3117		473	0·230	117 5·2	235 22	78 23	+ 4 0	P_3
	3118		474	0·952	123 12·0	179 7	22 8	−13 44	S.
	3119		474	0·979	123 39·5	171 18	14 19	−16 15	s.
	3120		474	0·605	138 26·0	216 18	59 19	−13 20	Σ.
	3121		474	0·326	201 4·1	262 36	105 37	−12 4	Q.
	3122		474	0·327	210 2·9	262 29	105 30	− 9 2	q.
	3123		474	0·364	210 58·3	253 59	97 0	−13 54	K.
	3124		472	0·426	194 16·7	247 34	90 35	−18 21	R.
	3125		471	0·411	254 19·3	268 54	111 55	− 6 9	O.
	3126		471	0·340	247 45·2	267 12	110 13	− 7 1	o.
17.	3127	228·481	475	0·593	87 56·4	214 4	29 5	+16 36	Q.
	3128		475	0·544	87 16·2	217 37	32 38	+16 15	q.
	3129		475	0·522	77 12·8	220 47	35 48	+20 54	K.
	3130		474	0·724	133 23·3	208 6	23 7	−13 47	S.
	3131		474	0·320	146 9·3	234 25	49 26	− 5 3	Σ.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1863.									
Aug. 17.	3132	228·481	474	0·387	140° 35′·2	216° 13′	31° 14′	−11° 17′	σ_1.
	3133		474	0·381	141 43·3	217 12	32 13	−10 58	σ_2.
	3134		474	0·350	142 44·3	218 26	33 27	− 9 43	x.
	3135		474	0·370	136 46·9	216 3	31 4	− 6 17	y.
	3136		473	0·220	281 20·3	263 10	78 11	+ 5 23	P_1.
	3137		473	0·225	276 24·5	263 29	78 30	+ 4 39	P_2.
	3138		473	0·243	275 13·4	263 58	78 59	+ 4 7	P_3.
	3139		472	0·571	242 3·9	275 32	90 33	−18 24	R.
18.	3140	229·677	476*a*	0·484	90 29·5	222 29	20 32	+14 2	Q.
	3141		476*a*	0·421	90 53·0	226 30	24 33	+13 2	q_1.
	3142		476*a*	0·451	93 26·3	225 16	23 19	+12 29	q_2.
	3143		475	0·349	77 13·3	237 24	35 27	+20 51	K.
	3144		475	0·377	78 29·8	235 8	33 11	+19 4	r.
	3145		475	0·382	76 31·2	234 59	33 2	+21 1	s.
	3146		475	0·342	72 53·5	238 50	36 53	+20 2	t.
	3147		474	0·549	146 27·3	225 16	23 19	−13 49	S.
	3148		474	0·209	207 44·3	251 25	49 28	− 5 19	Σ_1.
	3149		474	0·208	201 38·1	251 27	49 30	− 5 3	Σ_2.
	3150		474	0·226	182 19·4	233 25	31 28	−11 10	σ_1.
	3151		474	0·222	187 19·6	234 47	32 50	−10 54	σ_2.
	3152		474	0·210	181 21·5	232 40	30 43	−10 49	σ_3.
	3153		473	0·476	285 34·4	280 57	79 0	+ 5 29	P_1.
	3154		473	0·480	282 54·0	281 10	79 13	+ 4 48	P_2.
	3155		473	0·496	282 23·0	281 12	79 15	+ 4 13	P_3.
	3156		472	0·735	255 38·3	292 8	90 11	−18 22	R.
19.	3157	230·690	476*a*	0·292	81 53·4	236 11	19 52	+13 54	Q_1.
	3158		476*a*	0·287	83 58·9	236 15	19 56	+13 13	Q_2.
	3159		476*a*	0·210	76 52·3	241 16	24 57	+12 53	q_1.
	3160		476*a*	0·215	79 15·8	240 45	24 26	+12 35	q_2.
	3161		476*a*	0·225	84 49·1	239 41	23 22	+11 43	o.
	3162		475	0·197	52 6·8	251 20	35 1	+20 50	K.
	3163		475	0·244	46 4·7	249 19	33 0	+19 2	r.
	3164		475	0·234	38 25·7	249 4	32 45	+21 7	s.
	3165		475	0·193	31 32·6	252 17	35 58	+20 9	t.
	3166		475	0·216	50 56·8	251 33	35 14	+20 9	l.
	3167		474	0·419	166 16·4	239 23	23 4	−13 46	S_1.
	3168		474	0·413	167 38·8	239 30	23 11	−13 37	S_2.
	3169		474	0·420	167 28·7	239 26	23 7	−13 41	S_3.
	3170		474	0·339	251 44·8	265 38	49 19	− 5 11	Σ_1.
	3171		474	0·323	248 31·1	265 43	49 24	− 4 59	Σ_2.
	3172		474	0·290	237 10·0	247 39	31 20	−11 9	σ_1.
	3173		474	0·271	237 0·6	248 34	32 15	−10 59	σ_2.
	3174		474	0·261	238 54·3	246 59	30 40	−10 44	σ_3.
	3175		473	0·665	287 35·4	295 8	78 49	+ 5 31	P_1.
	3176		473	0·673	285 50·2	295 18	78 59	+ 4 57	P_2.
	3177		473	0·683	285 27·9	295 17	78 58	+ 4 11	P_3.
	3178		472	0·856	262 15·3	306 23	90 4	−18 20	R.
22.	3179	233·557	474*a*	0·696	212 34·7	266 37	9 38	−35 28	S.
	3180		476*a*	0·459	303 10·9	281 36	24 37	+12 55	Q_1.
	3181		476*a*	0·483	302 26·7	283 13	26 14	+12 50	Q_2.
	3182		476*a*	0·540	301 0·6	287 11	30 12	+12 37	q_1.
	3183		476*a*	0·521	299 59·5	285 57	28 38	+11 57	q_2.
	3184		473*a*	0·817	300 1·7	309 51	52 52	+13 28	Σ.
	3185		473*a*	0·765	298 31·8	304 53	47 54	+12 11	σ.
	3186		473*a*	0·908	303 32·8	320 35	63 36	+16 35	O.
24.	3187	235·680	475*a*	0·555	102 49·0	222 52	295 47	+ 9 21	N.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1863.									
Aug. 24.	3188	235·680	476*b*	0·612	300° 48′·3	294° 27′	7° 22′	+12° 42′	Q_1.
	3189		476*b*	0·627	300 38·9	295 34	8 29	+12 42	Q_2.
	3190		476*b*	0·695	300 25·2	300 55	13 50	+12 54	q_1.
	3191		476*b*	0·677	299 15·6	299 31	12 26	+12 2	q_2.
	3192		476*a*	0·906	300 33·3	322 18	35 13	+13 19	Σ.
	3193		476*a*	0·958	303 6·0	330 57	43 52	+15 22	P.
28.	3194	239·456	476	0·567	300 28·9	295 0	314 21	+11 42	N_1.
	3195		476	0·582	300 1·8	296 3	315 24	+11 31	N_2.
	3196		476	0·572	299 43·2	295 22	314 43	+11 17	N_3.
	3197		476	0·484	288 15·3	289 18	308 39	+ 5 20	O.
	3198		476	0·440	275 8·2	285 27	304 48	− 0 4	P.
29.	3199	240·444	477*a*	0·950	125 39·6	330 38	335 58	−11 56	S.
	3200		476	0·976	294 37·3	339 0	344 20	+ 5 37	Q.
	3201		476	0·689	291 34·5	305 0	310 20	+ 6 4	N_1.
	3202		476	0·695	291 28·6	305 21	310 41	+ 5 52	N_2.
	3203		476	0·692	290 59·5	305 12	310 32	+ 5 33	N_3.
	3204		476	0·722	289 11·3	307 29	312 49	+ 4 3	O.
	3205		476	0·191	273 25·5	271 49	277 9	+ 3 52	Π.
	3206		476	0·447	281 43·7	287 28	292 48	+ 2 34	p.
31.	3207	242·479	477	0·743	108 41·4	215 13	191 41	+ 6 33	P.
	3208		477	0·746	107 46·3	214 55	191 23	+ 7 13	π.
	3209		477	0·739	103 44·8	215 21	191 49	+10 12	p.
	3210		478*a*	0·585	144 38·7	233 32	210 0	−12 36	S.
Sept. 1.	3211	243·437	477*b*	0·731	135 31·4	221 26	184 19	−12 12	M.
3.	3212	245·451	477	0·086	59 7·9	262 15	196 34	+10 13	O.
7.	3213	249·510	477*c*	0·927	109 49·5	202 2	78 46	+ 5 24	M.
10.	3214	252·424	477*c*	0·773	101 50·1	222 7	57 31	+13 27	O.
	3215		477*c*	0·495	115 28·2	243 25	78 49	+ 5 14	M.
	3216		478	0·049	167 9·7	272 46	118 10	+ 4 27	Q.
	3217		478	0·068	200 11·8	272 52	108 16	+ 3 33	q.
	3218		479	0·122	249 35·0	278 7	113 31	+ 2 23	P.
	3219		479	0·115	248 15·9	277 42	113 6	+ 2 34	p.
	3220		479	0·108	243 17·1	277 2	112 26	+ 2 29	π_1
	3221		479	0·104	243 50·3	276 55	111 19	+ 2 43	π_2.
11.	3222	253·434	477*c*	0·607	100 30·8	235 14	56 59	+13 28	O.
	3223		477*c*	0·274	119 51·0	256 57	78 2	+ 5 21	M.
	3224		478	0·240	283 20·9	286 59	108 4	+ 4 21	Q.
	3225		478	0·242	279 9·1	287 18	108 23	+ 3 37	q.
	3226		479	0·349	280 15·7	292 34	113 39	+ 2 28	P.
	3227		479	0·342	280 32·1	291 56	113 1	+ 2 29	p.
	3228		479	0·334	280 35·4	291 23	112 28	+ 2 28	π_1.
	3229		479	0·332	279 52·8	290 2	111 7	+ 2 46	π_2.
16.	3230	258·436	479*a*	0·528	119 30·8	247 21	357 28	+ 3 26	Q.
	3231		479*b*	0·586	185 38·5	245 15	355 22	− 5 1	N.
17.	3232	259·507	479*a*	0·303	126 37·6	262 50	357 46	+ 3 13	Q.
	3233		479*c*	0·687	112 14·9	236 27	331 23	+ 6 39	x.
	3234		479*c*	0·678	115 3·7	237 19	332 15	+ 4 17	y.
18.	3235	260·479	479*a*	0·101	157 40·0	233 21	314 30	+ 3 10	Q.
	3236		479*c*	0·525	105 1·2	249 17	330 26	+11 9	x.
	3237		479*c*	0·522	103 5·6	249 35	330 44	+12 8	y.
19.	3238	261·440	479*a*	0·169	272 49·2	290 54	358 25	+ 3 21	Q.
21.	3239	263·583	479*c*	0·259	344 17·5	294 16	331 23	+18 9	M.
22.	3240	264·524	480*a*	0·376	120 28·9	263 1	286 47	+ 4 34	N.
	3241		480*b*	0·936	101 32·5	274 26	298 12	+ 9 26	P.
23.	3242	265·453	480	0·844	101 9·8	227 52	238 28	+15 46	P.
	3243		480	0·868	101 46·4	225 11	235 47	+15 18	p.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1863.									
Sept. 23.	3244	265·453	480	0·897	102° 20′·6	221° 31′	232° 7′	+14° 48′	π.
	3245		480	0·888	103 29·2	222 30	233 6	+13 47	o.
	3246		480	0·877	104 4·0	224 3	234 39	+13 18	w.
	3247		480	0·641	100 21·9	246 13	256 49	+14 58	x.
	3248		480	0·593	101 6·8	249 42	260 18	+14 4	y.
	3249		480	0·487	103 35·3	256 54	267 30	+11 50	z.
	3250		480*c*	0·342	280 34·1	305 8	315 44	+ 1 34	M.
	3251		480*c*	0·362	282 43·6	306 29	317 5	+ 1 59	m.
	3252		480*c*	0·412	281 26·5	309 22	319 58	+ 0 42	N.
24.	3253	266·653	480	0·689	99 18·8	244 24	237 58	+15 43	P.
	3254		480	0·707	100 2·0	241 46	235 20	+15 16	p.
	3255		480	0·742	102 47·1	238 3	231 37	+14 51	π.
	3256		480	0·752	103 36·6	239 17	232 51	+13 50	o.
	3257		480	0·744	104 10·2	240 43	234 17	+13 11	w.
	3258		480	0·423	96 54·7	262 25	255 59	+14 57	x.
	3259		480	0·362	92 20·3	266 5	259 39	+14 1	y.
	3260		480	0·274	97 24·0	273 19	266 53	+11 47	z.
	3261		480*c*	0·892	287 50·7	349 4	342 38	− 1 50	W.
	3262		480	0·719	100 24·9	241 13	234 47	+15 4	a.
	3263		480	0·706	101 23·8	241 41	235 15	+14 56	b.
25.	3264	267·455	480	0·541	96 26·6	253 4	237 41	+15 40	P.
	3265		480	0·560	97 25·4	255 30	235 0	+15 15	p.
	3266		480	0·608	101 51·4	252 49	231 39	+13 57	o.
	3267		480	0·190	68 56·8	249 28	258 47	+13 59	y.
	3268		480	0·097	46 26·7	283 46	265 57	+13 58	Z.
	3269	267·622	480	0·516	95 48·0	257 45	237 35	+15 30	P.
	3270		480	0·534	96 58·2	255 21	235 11	+15 7	p.
	3271		480	0·582	101 42·2	251 50	231 40	+14 1	o.
	3272		480	0·170	60 43·4	278 53	258 43	+14 4	y.
	3273		480	0·104	18 33·6	276 14	256 4	+14 55	x.
26.	3274	268·464	480	0·360	88 32·3	269 18	237 11	+15 37	P_1.
	3275		480	0·353	86 44·4	269 47	237 40	+15 28	P_2.
	3276		480	0·370	89 43·2	267 13	235 6	+15 13	p.
	3277		480	0·418	97 22·9	263 1	230 54	+13 55	O_1
	3278		480	0·414	95 54·2	263 24	231 17	+14 4	O_2.
	3279		480	0·170	350 56·9	290 57	258 50	+14 2	y.
	3280	268·594	480	0·340	87 27·9	271 12	237 14	+15 35	P_1.
	3281		480	0·334	85 29·1	271 46	237 38	+15 27	P_2.
	3282		480	0·352	89 10·6	269 9	235 11	+15 14	p.
	3283		480	0·398	96 55·6	264 49	230 51	+13 56	o_1.
	3284		480	0·404	95 24·9	265 19	231 21	+14 4	o_2.
	3285		480	0·128	10 55·2	293 9	259 11	+11 2	q.
28.	3286	270·546	481	0·917	123 11·2	235 21	173 43	− 3 50	S.
	3287		481	0·945	122 4·6	220 49	159 11	− 3 29	s.
	3288		481	0·939	123 33·2	222 9	160 31	− 5 10	σ.
	3289		480	0·161	85 50·2	282 22	220 44	+11 27	Π_1.
	3290		480	0·150	81 32·1	283 40	222 2	+11 30	Π_2.
	3291		480	0·111	62 34·9	287 0	226 22	+11 50	π.
	3292		480	0·192	349 29·4	298 33	236 55	+15 38	P_1.
	3293		480	0·212	343 12·3	298 41	237 3	+15 21	P_2.
	3294		480	0·192	353 1·4	296 16	234 48	+15 7	p_1.
	3295		480	0·179	347 12·4	295 50	234 12	+14 33	p_2.
	3296		480	0·162	358 47·7	292 25	230 47	+13 50	o_1.
	3297		480	0·156	352 10·3	292 53	231 15	+14 6	o_2.
	3298		480	0·146	357 18·8	290 57	229 19	+13 42	o_3.
	3299		480*b*	0·551	299 10·4	324 18	262 40	+ 7 6	y.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1863.									
Sept. 28.	3300	270·546	480*c*	0·553	271° 3′·7	320° 57′	259° 19′	− 7° 45′	w.
	3301	270·612	481	0·910	123 33·4	236 14	173 39	− 3 48	S.
	3302		481	0·940	122 29·1	221 41	159 6	− 3 25	s.
	3303		481	0·932	124 5·0	222 59	160 24	− 5 11	σ.
	3304		480	0·146	83 31·2	282 51	220 16	+11 28	Π_1.
	3305		480	0·140	79 16·1	284 29	221 54	+11 33	Π_2.
	3306		480	0·100	56 32·0	288 38	226 3	+11 45	π.
	3307		480	0·199	345 48·6	299 28	236 53	+15 35	P_1.
	3308		480	0·219	339 51·6	299 35	237 0	+15 20	P_2.
	3309		480	0·198	349 50·5	297 15	234 40	+15 2	p_1.
	3310		480	0·187	343 28·1	296 45	234 10	+14 39	p_2.
	3311		480	0·168	354 13·6	293 20	230 45	+13 40	o_1.
	3312		480	0·162	347 8·9	293 33	230 58	+14 7	o_2.
	3313		480	0·149	352 16·7	291 59	229 24	+13 45	o_3.
	3314		480*b*	0·562	298 49·1	325 16	262 41	+ 7 6	y.
	3315		480*c*	0·562	271 4·9	321 10	259 15	− 7 50	w.
	3316		480*a*	0·812	80 16·1	239 44	177 9	+32 34	x.
29.	3317	271·437	481	0·806	125 23·6	247 37	173 20	− 3 45	S.
	3318		481	0·868	123 13·3	233 10	158 53	− 3 28	s_1.
	3319		481	0·827	124 7·1	233 36	159 19	− 3 21	s_2.
	3320		481	0·851	126 10·9	234 14	159 57	− 5 5	σ_1.
	3321		481	0·846	125 57·5	234 20	160 3	− 5 19	σ_2.
	3322		481	0·875	126 27·5	233 38	159 21	− 6 31	t.
	3323		480	0·340	323 57·7	310 34	236 17	+15 37	P.
	3324		480	0·371	320 28·7	311 15	236 58	+15 19	P_2.
	3325		480	0·335	325 35·3	308 38	234 21	+15 5	p_1.
	3326		480	0·336	321 13·8	308 22	234 5	+14 41	p_2.
	3327		480	0·315	324 12·7	308 48	234 31	+14 58	o.
	3328		480	0·174	325 47·0	300 37	226 20	+11 35	π.
	3329		480	0·195	113 59·5	280 31	206 14	+ 7 0	x.
	3330		480	0·156	114 23·0	282 49	208 32	+ 6 55	z.
	3331		482	0·759	297 12·8	341 15	266 58	+ 5 17	y_1.
	3332		482	0·721	297 35·0	340 50	266 33	+ 5 14	y_2.
	3333		482	0·727	299 33·8	340 58	266 41	+ 5 29	y_3.
	3334		482	0·692	302 59·1	340 15	265 58	+ 5 19	y_4.
	3335	271·596	481	0·787	125 55·1	249 47	173 15	− 3 41	S.
	3336		481	0·855	123 34·4	235 16	158 44	− 3 32	s_1.
	3337		481	0·810	124 28·7	236 5	159 33	− 3 20	s_2.
	3338		481	0·835	126 36·2	236 15	159 43	− 5 7	σ_1.
	3339		481	0·818	126 2·7	236 22	159 50	− 5 20	σ_2.
	3340		481	0·859	127 0·4	235 44	159 12	− 6 28	t.
	3341		480	0·368	321 52·5	312 32	236 0	+15 33	P.
	3342		480	0·362	323 21·4	310 39	234 7	+14 59	p_1.
	3343		480	0·356	322 8·2	310 21	233 49	+14 38	p_2.
	3344		480	0·166	112 15·0	282 42	206 10	+ 6 57	x.
	3345		480	0·116	112 59·1	284 43	208 11	+ 6 59	z.
	3346		482	0·787	297 37·6	343 25	266 53	+ 5 19	y_1.
	3347		482	0·744	297 58·4	343 1	266 29	+ 5 15	y_2.
	3348		482	0·754	299 51·0	343 9	266 37	+ 5 31	y_3.
	3349		482	0·719	303 18·1	342 32	266 0	+ 5 17	y_4.
30.	3350	272·486	481	0·640	129 55·9	262 10	173 0	− 3 46	S.
	3351		481	0·741	126 5·0	247 19	158 9	− 3 27	s_1.
	3352		481	0·665	127 46·1	248 7	158 57	− 3 18	s_2.
	3353		481	0·712	130 23·5	248 27	159 17	− 5 11	σ_1.
	3354		481	0·679	129 31·6	248 58	159 48	− 5 19	σ_2.
	3355		481	0·750	130 13·5	247 57	158 47	− 6 20	t.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1863.									
Sept. 30.	3356	272·486	480	0·023	297° 44′·9	294° 37′	205° 27′	+ 6° 47′	X.
	3357		480	0·534	315 16·5	325 1	235 51	+15 40	P.
	3358		480	0·529	316 12·5	322 51	233 41	+14 47	p_1.
	3359		480	0·524	315 11·4	322 2	232 52	+14 21	p_2.
	3360		480	0·511	314 43·9	321 27	232 17	+13 33	o.
	3361		480	0·498	317 35·6	319 54	230 44	+13 40	O.
	3362		482	0·916	299 6·9	355 9	265 59	+ 5 17	y_1.
	3363		482	0·864	299 15·3	355 14	266 4	+ 5 14	y_2.
	3364		482	0·887	301 3·9	354 38	265 28	+ 5 37	y_3.
	3365		482	0·831	295 51·9	354 23	265 13	+ 3 11	m.
	3366		482	0·857	295 3·8	353 57	264 47	+ 3 38	n.
Oct. 1.	3367	273·397	481	0·469	136 47·6	274 38	172 33	− 3 40	S.
	3368		481	0·585	130 7·6	259 55	157 50	− 3 29	s_1.
	3369		481	0·477	131 46·2	260 45	158 40	− 3 16	s_2.
	3370		481	0·543	135 42·4	261 26	159 21	− 5 15	σ_1.
	3371		481	0·511	136 4·7	262 4	159 59	− 5 24	σ_2.
	3372		481	0·566	136 17·2	261 8	159 3	− 6 25	t.
	3373		480	0·690	312 11·1	338 7	236 2	+15 37	P.
	3374		480	0·686	313 4·2	335 54	233 49	+14 50	p_1.
	3375		480	0·691	310 51·1	334 39	232 34	+14 19	p_2.
	3376		480	0·669	311 11·4	334 0	231 55	+13 28	o.
	3377		482	0·983	300 26·6	8 14	266 9	+ 5 23	y.
	3378		482	0·916	297 40·5	8 42	266 37	+ 4 29	m.
	3379		482	0·960	298 33·0	0 16	258 11	+ 4 9	n.
	3380	273·635	481	0·426	139 11·4	277 59	172 31	− 3 38	S.
	3381		481	0·545	131 44·4	263 24	157 56	− 3 34	s_1.
	3382		481	0·429	133 31·6	264 11	158 43	− 3 18	s_2.
	3383		481	0·501	137 42·5	264 45	159 17	− 5 16	σ_1.
	3384		481	0·470	138 20·8	265 32	160 4	− 5 25	σ_2.
	3385		481	0·528	138 17·1	265 43	160 15	− 6 17	t_0.
	3386		481	0·560	136 11·7	264 30	159 2	− 6 28	t.
	3387		480	0·728	311 52·7	341 40	236 12	+15 40	P.
	3388		480	0·724	312 40·2	339 3	233 35	+14 52	p_1.
	3389		480	0·729	310 40·1	338 7	232 39	+14 20	p_2.
	3390		480	0·708	311 2·0	337 18	231 50	+13 29	o.
	3391		482	0·995	300 53·5	11 22	265 54	+ 5 20	y.
	3392		482	0·979	299 23·9	12 17	266 49	+ 4 30	m.
	3393		482	0·939	298 7·0	3 53	258 25	+ 4 6	n.
	3394		482*a*	0·354	299 57·4	314 46	209 18	+ 7 32	x.
	3395		482*a*	0·338	299 37·5	313 45	208 17	+ 7 24	v.
5.	3396	277·423	481	0·472	275 12·2	323 48	164 37	− 4 1	S_0.
	3397		481	0·473	273 27·1	323 30	164 19	− 4 47	S.
	3398		481	0·445	272 6·5	321 36	162 25	− 4 37	u.
	3399		481	0·469	271 49·4	322 24	163 13	− 5 8	v.
	3400		481	0·358	269 8·9	316 14	157 3	− 3 21	S_1.
	3401		483	0·835	130 58·2	243 7	83 56	− 8 26	M.
6.	3402	278·422	481	0·648	282 58·2	337 51	164 29	− 3 59	S_0.
	3403		481	0·648	281 25·5	337 32	164 10	− 4 50	S.
	3404		481	0·624	280 38·1	335 39	162 17	− 4 41	u.
	3405		481	0·639	280 4·4	336 40	163 18	− 5 7	v.
	3406		481	0·550	280 29·4	330 43	157 21	− 3 19	S_1.
	3407		483	0·686	136 16·2	256 36	83 14	− 8 47	M.
	3408	278·498	481	0·668	283 6·5	338 51	164 25	− 4 1	S_0.
	3409		481	0·668	281 49·0	338 37	164 11	− 4 56	S.
	3410		481	0·645	281 6·5	336 38	162 12	− 4 40	u.
	3411		481	0·669	280 26·7	337 45	163 19	− 5 9	v.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1863.					° ′	° ′	° ′	° ′	
Oct. 6.	3412	278·498	481	0·570	280 48·6	331 34	157 8	− 3 22	S_1.
	3413		483	0·681	136 48·2	257 25	82 59	− 8 49	M.
13.	3414	285·587	483	0·829	280 16·0	359 30	84 31	− 9 52	M.
	3415		484	0·378	232 35·8	315 40	40 41	−13 59	N.
	3416		484	0·320	219 23·2	310 0	35 1	−12 15	O.
14.	3417	286·405	484	0·487	251 34·4	327 28	40 52	−14 1	N.
	3418		484	0·478	251 28·3	327 17	40 41	−13 54	N_0.
	3419		483	0·913	282 39·3	11 5	84 29	− 9 50	M.
	3420		484	0·429	245 2·7	322 36	36 0	−13 55	q.
	3421		484	0·443	248 42·0	324 24	37 48	−13 30	p.
	3422		484	0·406	246 13·8	321 59	35 23	−12 28	O.
	3423		484	0·413	245 31·3	321 45	35 9	−13 17	o.
16.	3424	288·412	485	0·931	126 26·6	242 31	287 27	− 7 13	W.
	3425		486	0·973	112 44·1	231 49	276 45	+ 4 50	V.
	3426	288·587	485	0·917	126 51·3	245 2	287 29	− 7 11	W.
	3427		486	0·964	112 57·0	234 12	276 39	+ 4 53	V.
17.	3428	289·412	485	0·821	128 59·4	256 17	287 2	− 7 16	W.
	3429		486	0·886	114 23·7	245 33	276 18	+ 4 57	V.
	3430		486	0·918	114 21·8	245 8	275 53	+ 4 50	V_0.
	3431	289·599	485	0·797	129 44·0	259 2	287 8	− 7 18	W.
	3432		486	0·865	114 39·4	248 9	276 15	+ 4 58	V.
22.	3433	294·633	487	0·339	256 49·0	330 8	286 50	− 7 20	W.
	3434		487	0·335	254 23·2	329 27	286 9	− 7 49	W_0.
	3435		488	0·312	292 40·4	332 57	289 39	+ 3 53	V.
	3436		488	0·326	290 11·1	333 40	290 22	+ 3 1	v.
	3437		488	0·238	294 28·3	328 33	285 15	+ 4 40	q.
	3438		488	0·258	294 4·6	329 46	286 28	+ 4 30	p.
	3439		488	0·240	297 26·6	328 43	285 25	+ 5 22	o.
23.	3440	295·428	487	0·480	270 40·4	341 15	286 40	− 7 18	W.
	3441		487	0·471	268 52·8	340 39	286 4	− 7 45	W_0.
	3442		488	0·510	293 40·4	343 52	289 17	+ 3 51	V.
	3443		488	0·421	296 10·6	339 46	285 11	+ 5 19	o.
	3444	295·591	487	0·514	272 15·9	343 31	286 37	− 7 17	W.
	3445		487	0·503	270 30·4	342 54	286 0	− 7 47	W_0.
	3446		488	0·549	293 51·2	346 7	289 13	+ 3 53	V.
	3447		488	0·457	296 12·1	342 1	285 7	+ 5 20	o.
31.	3448	303·414	489	0·817	271 9·1	14 40	206 48	−16 25	M.
	3449		489	0·761	268 19·7	8 44	200 52	−16 46	m.
	3450		489	0·779	268 56·8	10 28	202 36	−16 53	n.
	3451		489	0·759	267 12·4	8 16	200 24	−17 30	q.
	3452		490	0·178	43 46·1	320 11	152 19	+13 58	R.
	3453		490	0·183	48 38·7	319 14	151 22	+13 55	R_0.
	3454		490	0·228	73 55·7	313 29	145 37	+12 48	S.
	3455		490	0·231	77 35·8	312 47	144 55	+12 14	S_0.
	3456		491	0·961	127 32·8	251 1	83 9	−10 57	s.
	3457	303·591	489	0·837	271 58·0	17 25	207 3	−16 31	M.
	3458		489	0·799	269 45·7	10 36	200 14	−16 41	m.
	3459		489	0·781	269 12·9	12 41	202 19	−16 57	n.
	3460		489	0·779	268 12·2	10 22	200 0	−17 31	q.
	3461		490	0·170	29 43·4	322 29	152 7	+13 54	R.
	3462		490	0·168	35 16·8	321 41	151 19	+13 50	R_0.
	3463		490	0·198	70 58·6	315 33	145 11	+12 49	S.
	3464		490	0·200	67 7·2	315 21	144 59	+12 18	S_0.
	3465		491	0·952	127 50·7	253 12	82 50	−10 52	s.
Nov. 1.	3466	304·398	489	0·922	274 40·5	29 40	207 51	−16 40	M.
	3467		490	0·247	340 1·1	335 0	153 11	+13 58	R.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1863.									
Nov. 1.	3468	304·398	490	0·148	10° 40′·0	328° 6′	146° 17′	+12° 50′	S.
	3469		490	0·177	2 51·0	329 4	147 15	+13 11	a.
	3470		490	0·196	356 55·0	330 52	149 3	+13 42	b.
	3471		490	0·222	347 13·2	332 13	150 24	+13 51	c.
	3472		491	0·867	129 51·6	263 40	81 51	−10 54	s.
2.	3473	305·452	489	0·982	277 53·7	44 46	208 0	−16 43	M.
	3474		490	0·444	319 55·9	350 52	154 6	+13 51	R.
	3475		490	0·418	321 17·9	349 48	153 2	+13 50	m.
	3476		490	0·301	323 49·3	342 43	145 57	+12 53	S.
	3477		490	0·289	325 19·7	340 17	143 31	+12 28	S_1.
	3478		490	0·276	327 36·0	338 58	142 12	+12 38	n.
6.	3479	309·427	490	0·974	307 41·9	46 41	153 32	+14 27	S_0.
9.	3480	312·510	492	0·521	91 35·4	302 53	6 0	+13 50	P_1.
	3481		492	0·515	91 35·4	303 13	6 20	+13 44	P_2.
12.	3482	315·572	494	0·972	102 10·1	259 12	278 53	+10 32	A.
	3483		493	0·943	124 12·3	266 19	286 0	−10 11	B.
13.	3484	316·492	494	0·916	101 9·8	271 43	278 21	+10 25	A.
	3485		493	0·864	125 50·4	278 59	285 37	−10 17	B.
19.	3486	322·549	495	0·300	323 17·7	357 36	278 19	+11 31	A_0.
	3487		495	0·310	322 37·8	358 11	278 54	+11 39	A_1.
	3488		493	0·466	265 32·7	8 1	288 44	− 9 12	B.
	3489		493	0·330	254 40·2	358 26	279 9	− 8 54	b_0.
	3490		493	0·339	256 9·4	359 10	279 53	− 8 47	b_1.
	3491		493	0·224	243 58·0	351 40	272 23	− 7 5	c_0.
	3492		493	0·232	238 6·3	350 57	271 40	− 8 18	c_1.
	3493		496	0·615	101 40·9	305 6	225 49	+ 7 2	D.
	3494		497	0·869	129 9·3	284 33	205 16	−15 6	E.
20.	3495	323·477	495	0·475	310 34·1	10 37	278 11	+11 29	A_0.
	3496		495	0·484	310 9·5	11 29	279 3	+11 42	A_1.
	3497		493	0·634	272 13·1	20 32	288 6	− 9 4	B.
	3498		493	0·496	267 32·2	10 55	278 29	− 8 59	b_0.
	3499		493	0·510	267 6·6	12 6	279 40	− 8 42	b_1.
	3500		498	0·395	266 52·1	4 25	271 59	− 7 6	c_0.
	3501		498	0·408	261 34·4	3 36	271 10	− 8 23	c_1.
	3502		496	0·431	97 45·1	318 30	226 4	+ 7 5	D.
	3503		497	0·462	125 52·3	317 16	224 50	− 5 23	E.
	3504		497	0·506	124 42·8	314 20	221 54	− 5 34	e.
	3505		497	0·403	209 46·3	347 52	255 26	−21 16	G.
	3506		499	0·872	98 2·1	283 27	191 1	+11 25	H.
	3507		499	0·901	95 42·6	279 40	187 14	+14 4	h.
21.	3508	324·477	495	0·664	304 32·2	25 28	278 51	+11 53	A_1.
	3509		495	0·658	306 58·7	24 17	277 40	+11 40	A_0.
	3510		493	0·686	274 17·3	25 42	279 5	− 8 40	b_1.
	3511		493	0·666	274 3·4	24 53	278 16	− 9 0	b_0.
	3512		498	0·487	238 20·7	2 51	256 14	−20 43	G_1
	3513		498	0·463	233 36·7	1 8	254 31	−21 9	G_0.
	3514		497	0·267	138 39·1	331 56	225 19	− 5 28	E.
	3515		497	0·599	138 41·3	327 41	221 4	− 5 40	e.
	3516		497	0·267	163 20·8	335 54	229 17	−10 37	m.
	3517		497	0·243	173 14·4	339 17	232 40	−10 51	n.
	3518		496	0·214	86 40·7	332 10	225 33	+ 7 14	D.
	3519		499	0·723	96 2·2	297 25	190 48	+11 21	H.
22.	3520	325·430	495	0·810	301 37·8	38 49	278 41	+11 57	A_1.
	3521		495	0·805	302 18·9	38 2	277 54	+11 33	A_0.
	3522		493	0·826	277 20·5	38 57	278 49	− 8 41	b_1.
	3523		496	0·089	356 59·2	345 25	225 17	+ 7 18	D.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1863.									
Nov. 22.	3524	325·430	497	0·130	190° 6′·3	344° 56′	224° 48′	− 5° 23′	E.
	3525		497	0·224	215 13·9	349 11	629 3	−10 33	m.
	3526		497	0·247	228 29·1	352 37	232 29	−10 35	n.
23.	3527	326·420	495	0·922	300 19·9	52 46	278 35	+11 58	A_1.
	3528		495	0·920	300 44·1	52 0	277 49	+11 29	A_0.
	3529		493	0·933	278 50·1	52 30	278 19	− 8 49	b_1.
	3530		496	0·301	305 56·5	3 24	229 13	+ 6 36	D.
	3531		496	0·266	308 36·4	1 11	227 0	+ 6 43	d.
	3532		497	0·247	255 55·4	359 12	225 1	− 5 26	E.
	3533		497	0·368	251 59·1	3 17	229 6	−10 40	m.
	3534		497	0·408	257 4·2	6 52	232 41	−10 44	n.
28.	3535	331·477	500	0·580	125 49·8	317 57	112 2	− 9 44	a.
	3536		500	0·530	128 45·7	321 47	115 52	−10 14	b.
	3537		506	0·493	133 36·9	325 0	119 5	−11 39	c.
	3538		500	0·565	129 10·6	319 32	113 37	−11 14	d.
Dec. 3.	3539	336·517	503	0·570	261 39·7	28 59	111 35	−12 49	a.
	3540		503	0·611	261 17·4	31 44	114 20	−14 1	b.
	3541		502	0·698	267 59·3	39 26	122 2	−11 39	c.
	3542		501	0·880	297 19·4	57 40	140 16	+10 43	F.
	3543		501	0·820	296 57·1	51 12	133 48	+ 9 44	f.
4.	3544	337·449	501	0·962	296 9·6	71 12	140 35	+10 39	F.
	3545		501	0·927	295 16·5	63 54	133 17	+ 9 48	f.
	3546		503	0·721	266 17·4	42 44	112 7	−12 55	a.
	3547		503	0·766	269 45·7	45 25	114 48	−14 9	b.
	3548		502	0·829	270 38·9	53 24	122 47	−11 33	c_0.
	3549		502	0·836	270 34·4	53 48	123 11	−11 38	c_1.
10.	3550	343·467	504	0·698	273 25·4	47 32	41 33	− 6 35	a′.
	3551		504	0·668	273 55·3	45 16	39 17	− 6 0	b′.
	3552		505	0·588	108 21·4	328 5	312 6	− 3 52	A.
	3553		506	0·712	108 11·5	318 42	302 43	− 4 26	B_1.
	3554		506	0·723	109 4·6	317 50	301 51	− 5 8	B_2.
	3555		506	0·614	109 50·9	326 17	310 18	− 4 56	m.
	3556		506	0·645	108 34·7	323 54	307 55	− 4 20	n.
	3557		506	0·655	109 28·3	323 14	307 15	− 4 58	o.
	3558		507	0·930	88 57·2	296 17	280 18	+12 18	C.
14.	3559	347·492	505	0·339	271 35·5	27 18	314 13	− 3 58	A.
	3560		506	0·234	265 31·1	20 47	307 42	− 4 27	a.
	3561		509	0·277	334 34·9	17 18	304 13	+11 54	S.
	3562		508	0·320	324 57·4	21 14	308 13	+11 55	t.
	3563		507	0·444	81 16·4	342 53	269 48	+ 7 30	C.
	3564		507	0·342	56 35·0	353 12	280 7	+12 44	c.
18.	3565	351·446	505	0·953	274 28·7	84 6	314 56	− 4 34	A.
	3566		510	0·700	79 5·4	329 35	200 25	+12 30	B.
	3567		510	0·750	78 32·7	325 35	196 25	+13 58	b.
	3568		510	0·767	78 26·9	324 6	194 56	+14 25	c.
	3569		510	0·815	78 8·4	319 38	190 28	+15 45	d.
	3570		510	0·866	80 23·0	313 45	184 35	+15 3	e.
	3571		510	0·768	82 17·4	313 16	184 6	+11 35	f.
	3572		510	0·753	81 9·7	324 51	195 41	+12 7	g.
	3573		510	0·730	80 43·5	326 51	197 41	+11 59	h.
19.	3574	352·531	505	0·997	274 4·6	99 42	315 9	− 4 38	A.
	3575		510	0·521	71 1·8	345 6	200 33	+12 36	B.
	3576		510	0·578	71 49·4	341 21	196 48	+14 3	b.
	3577		510	0·614	73 17·8	339 42	195 9	+14 31	c.
	3578		510	0·657	71 38·7	335 12	190 39	+15 46	d.
	3579		510	0·683	75 4·7	329 28	184 55	+15 9	e.

TABLE III. (continued).

Date.	No.	Mean Time of Sun-picture.	No. of Group in the Kew Catalogue.	Distance from Centre.	Angle of Position.	Longitude from Node.	Helio-graphical Longitude.	Helio-graphical Latitude.	Spot.
1863.					° ′	° ′	° ′	° ′	
Dec. 19.	3580	352·531	510	0·725	76 21·4	328 20	183 47	+15 4	ε.
22.	3581	355·513	510	0·291	328 57·8	27 51	201 0	+12 43	B.
	3582		510	0·284	352 10·0	20 12	193 21	+13 53	C.
	3583		510	0·297	20 48·4	11 44	184 53	+14 41	ε.
	3584		510	0·305	28 13·0	9 28	182 37	+14 26	e.
	3585		510	0·305	4 32·1	16 42	189 51	+15 38	d_1.
	3586		510	0·306	0 46·3	17 53	191 2	+15 39	d_2.
	3587		511	0·777	81 15·9	326 34	139 43	+10 43	M.
	3588		512	0·646	109 17·9	336 23	149 32	− 9 30	N_1.
	3589		512	0·642	110 11·8	336 44	149 53	−10 2	N_2.
	3590		512	0·655	110 35·6	335 51	149 0	−10 26	N_3.
	3591		512	0·711	109 27·7	331 16	144 25	−10 19	o.
	3592		512	0·737	109 50·8	329 9	142 18	−50 52	m.
	3593		513	0·883	107 20·7	314 18	127 27	−10 10	P.
	3594		513	0·901	105 44·4	311 56	125 5	− 8 51	p.
23.	3595	356·555	510	0·402	318 36·5	35 27	193 50	+13 57	C.
	3596		510	0·381	328 24·9	31 4	189 27	+15 39	d_1.
	3597		510	0·394	325 20·1	32 51	191 14	+15 43	d_2.
	3598		510	0·324	339 9·2	26 48	185 11	+14 47	ε_1.
	3599		510	0·330	337 58·9	26 55	185 18	+14 39	ε_2.
	3600		514	0·299	344 31·5	24 34	182 57	+14 28	e_1.
	3601		514	0·290	344 29·8	24 7	182 30	+14 27	e_2.
	3602		511	0·611	76 32·8	341 25	139 48	+10 12	M.
	3603		512	0·545	114 19·3	346 14	144 37	−11 26	N.
	3604		512	0·502	116 21·1	349 20	148 43	−11 43	o.
	3605		512	0·445	115 20·2	352 49	151 12	−10 13	m.
	3606		511*a*	0·633	71 51·4	341 50	140 13	+13 28	r.
	3607		511*a*	0·587	70 43·5	344 5	142 28	+12 4	S.
25.	3608	358·420	510	0·775	292 18·1	70 6	202 11	+12 46	B.
	3609		510	0·719	298 33·7	61 59	193 54	+13 57	C.
	3610		510	0·682	302 3·0	58 22	190 17	+15 40	d_1.
	3611		510	0·691	300 57·2	59 53	191 48	+15 45	d_2.
	3612		514	0·572	303 52·4	51 19	183 14	+14 29	e_1.
	3613		514	0·568	303 18·2	51 5	183 0	+14 23	e_2.
	3614		512	0·126	180 54·0	18 54	150 49	−10 33	N.
	3615		513	0·199	148 2·8	10 18	142 13	−10 49	m.
	3616		513	0·401	117 33·8	356 11	128 6	−10 19	P.
	3617		515	0·786	91 10·9	327 26	99 21	+ 1 54	O.
30.	3618	363·471	512	0·916	264 46·3	90 15	150 31	− 8 45	N.
	3619		513	0·675	258 13·9	65 42	125 58	−12 6	a.
	3620		513	0·720	261 32·2	69 39	129 55	−10 18	b.
	3621		513	0·763	261 59·3	73 23	133 39	−10 19	c.
	3622		516	0·231	301 39·4	35 42	95 58	+ 3 26	S.
	3623		515	0·323	288 51·8	42 3	102 19	+ 3 37	O.

Explanation of the Plates.

PLATE I.

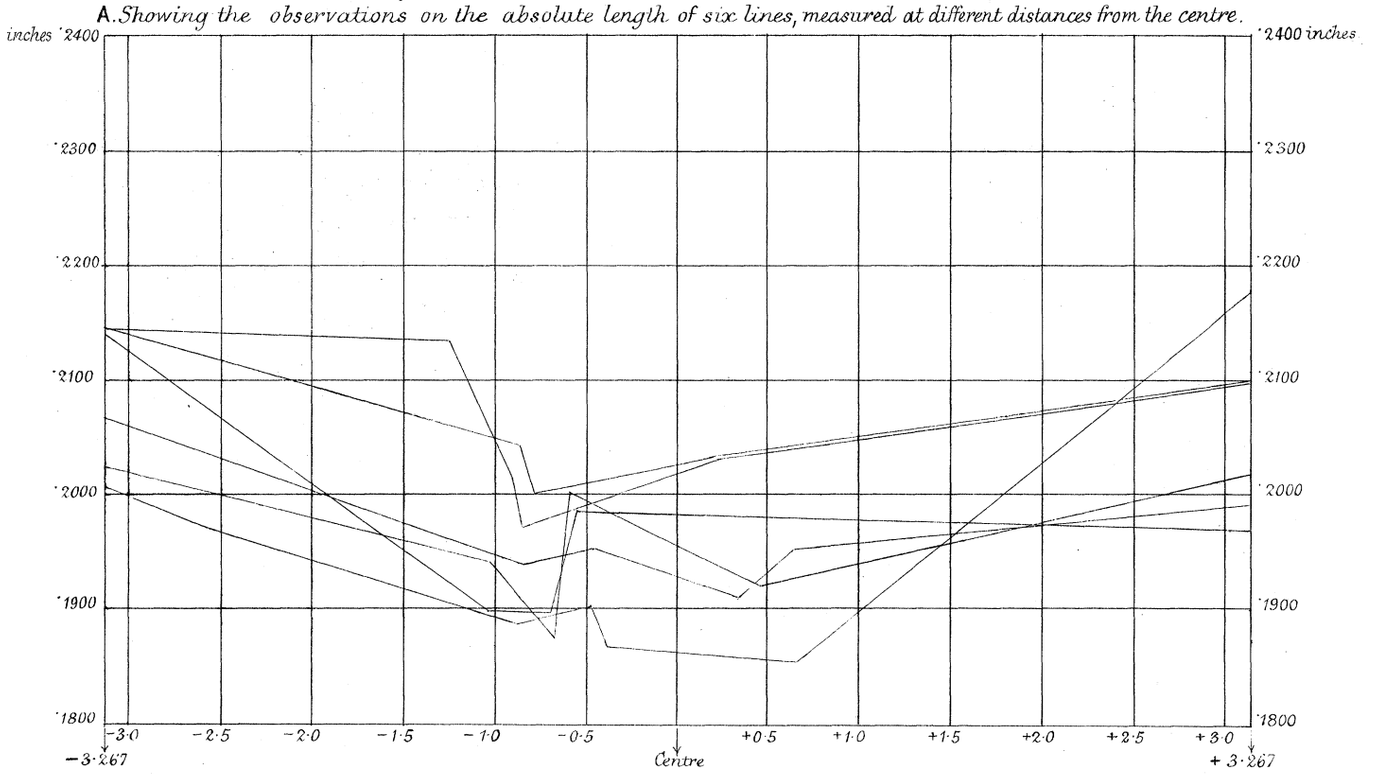
A. Represents the absolute length, in inches, of six lines, photographed in different parts of the field of the object-glass. The abscissæ are the distances of the lines from the centre of the object-glass, the ordinates the corresponding lengths in inches.

B. RR′ represents the mean length of all observed lines in one direction, WW′ the mean length of the lines measured in a direction perpendicular to the former. MM′ is the mean length of all measured lines. The coordinates are the same as before.

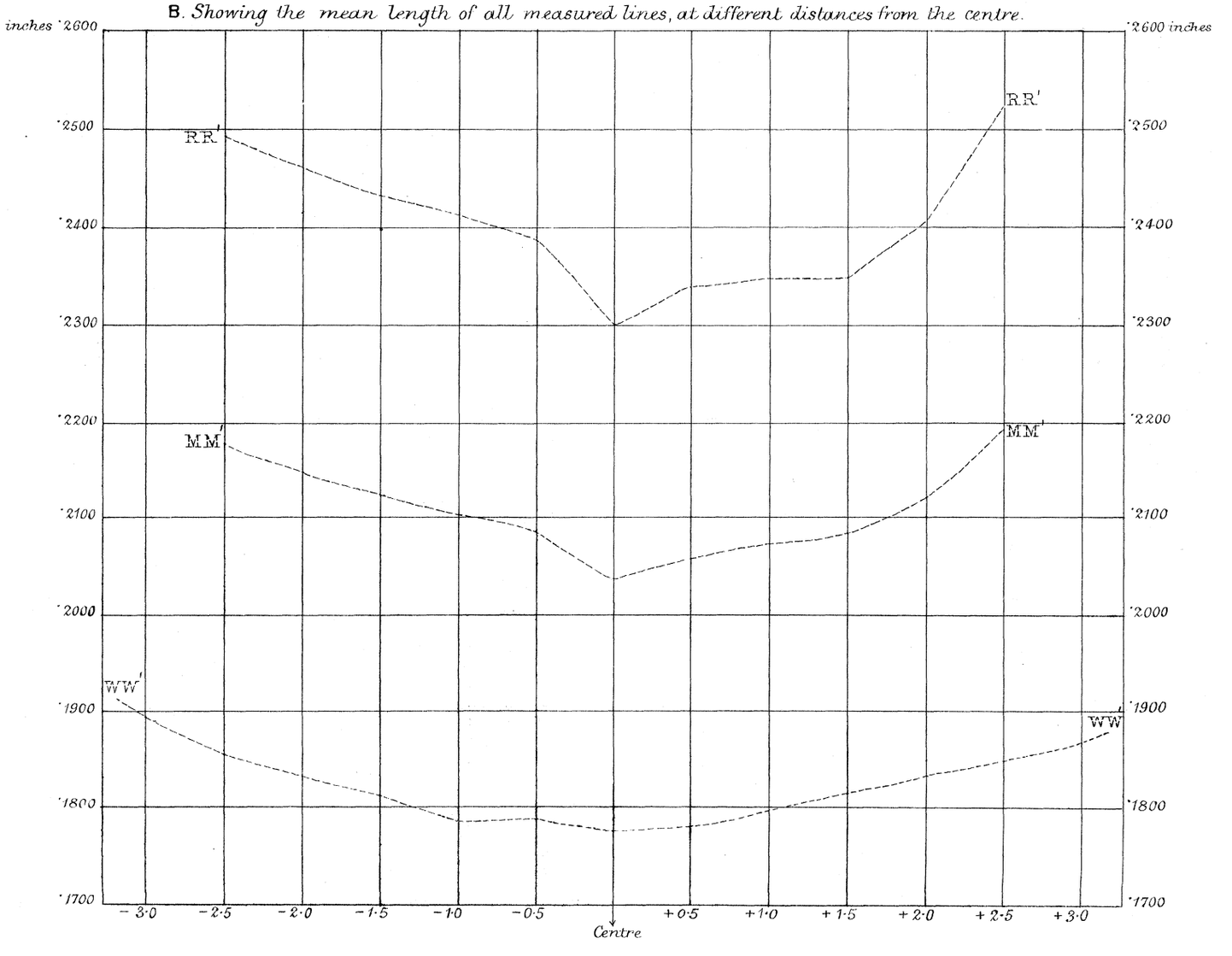
PLATE II.

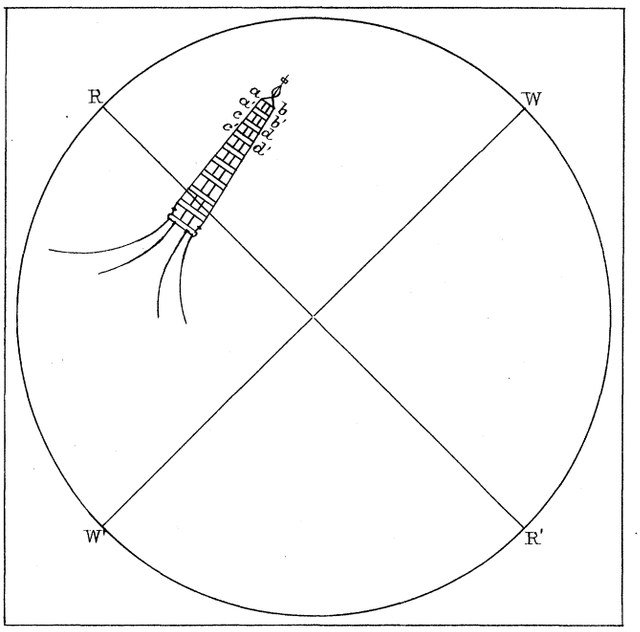
Represents the pinnacle of the Kew Pagoda as it appears on the photographs in different parts of the field. The measurement of the distances ab, $a'b'$, cd, $c'd'$ gave the length of the same lines in different parts of the field, while the distances aa', $a'c$, cc', bb', $b'd$, dd' supplied the material for measurements in a direction perpendicular to the former.

A. *Showing the observations on the absolute length of six lines, measured at different distances from the centre.*

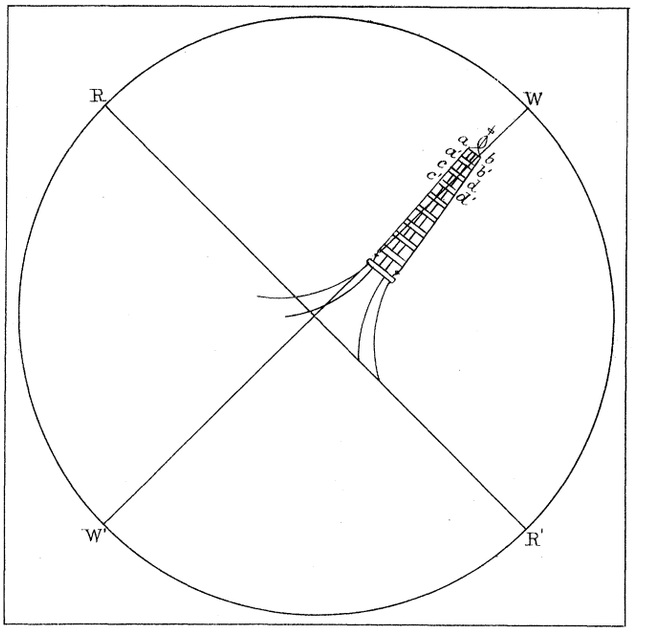


B. *Showing the mean length of all measured lines, at different distances from the centre.*



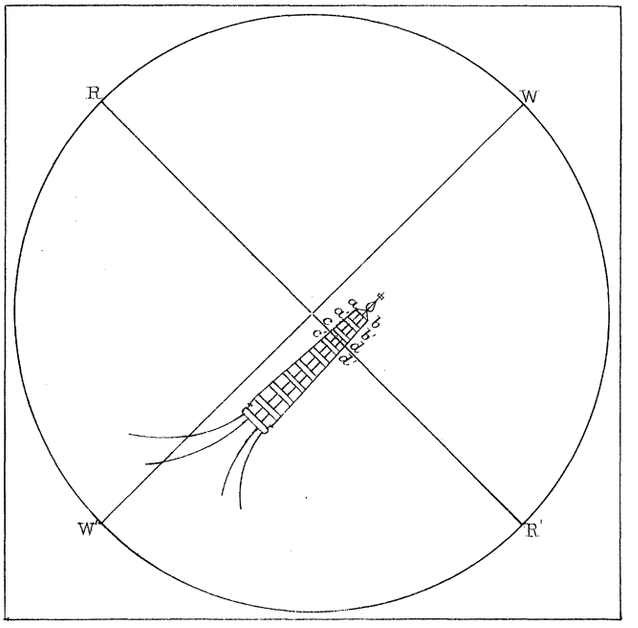


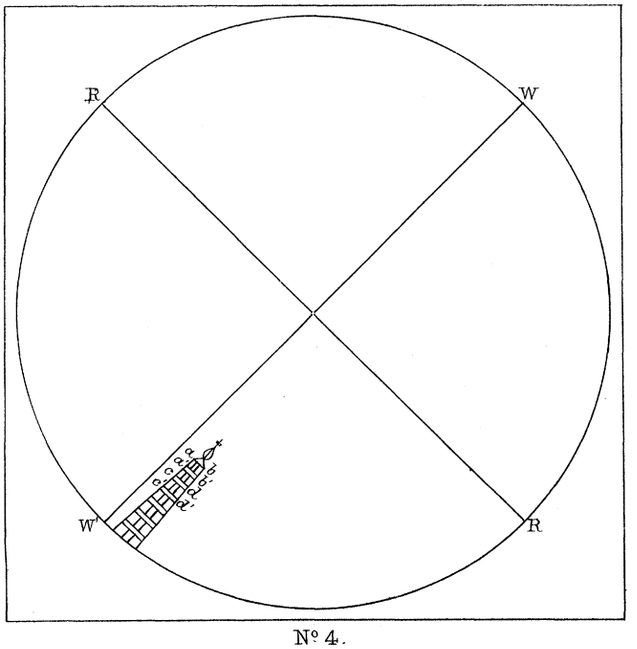
N° 1.



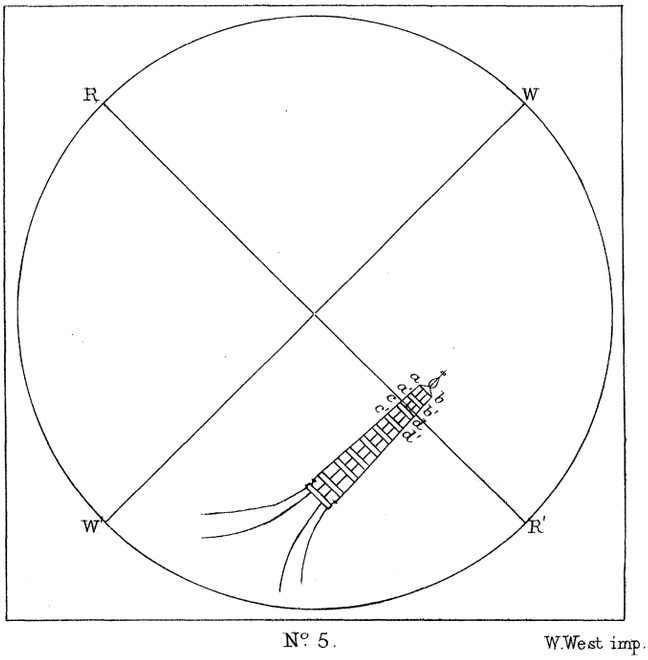
N° 2.

N° 3.





N° 4.



N° 5.

W. West imp.